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A handsome new Burmese Bamboo.

The picture which forms the frontispiece to our January number and consequently to our twentieth Volume, represents a new bamboo from Upper Burma, belonging to a new genus *Thyrsostachys*, which is characterized by its thyrsoid paniculate bracteate inflorescence and palese keeled in the lower flowers and not or hardly keeled in the upper and having the lower ones deeply divided so as to present two long tails. The bamboo was discovered by Mr. J. W. Oliver, Conservator of Forests of the Eastern Circle of Upper Burma, and the photograph, from the negative of which our picture has been obtained, was taken by him. It is, therefore, only appropriate that its name should be *Thyrsostachys Olivieri*. Full description and plate will shortly be published in the Annals of the Royal Botanic Garden, Calcutta. Mr. Oliver says that the *Thanawa*, as it is called in Burmese, is in considerable demand, though the culms are not quite so strong as those of some other species. Large quantities of the seed were distributed from Burma and we have it growing excellently in Dehra Dun where there is a considerable patch of it planted at Lachiwala, doing very well indeed. As the picture shows, it is likely to be as ornamental as it is useful.

J. S. G.

A Tour in Jaunsar. (*concluded.*)

The Sleeper Works.

The Sleeper Works are at present going on in the Dopta Block on a steep slope facing south west.

The trees are marked by the divisional officer or the forest ranger with a blaze and the divisional hammer. They are then felled by a special gang of men, generally Garhwalis from the neighbouring villages. The rates paid are as follows :—

All dead trees, each			4 annas
For a green tree	6—8 ft. girth	... ...	6 annas
ditto	8—10 „	... ...	8 „
ditto	over 10 „	... ...	12 „

The felling is done with the axe alone, and the trees are generally felled sideways, *i.e.*, neither up the slope nor down it ; this tends to lessen the chance of breaking.

The tree is then sawn into logs of the requisite length—in the case of metre-guage sleepers, 6 feet 3 inches long, and in the case of broad guage sleepers 10 feet 3 inches long. Each log is then rolled down to a convenient place for the sawyers and is rough squared on four sides by means of the trimming axe. The axe used varies according to the workmen—Kulu men using a broad bladed axe weighing about 14 lbs, Punjabis a thicker narrower and lighter axe weighing 6 or 7 lbs ; in both cases the handle is long.

The saw in use for cutting up the logs into sleepers is a frame saw bought at Amritsar, but manufactured either at Sheffield, or at Solingen in Germany.

The following rates are paid for sawing :—

B. G.	1st Class	... ...	6 as.	each
	2nd „	... ...	4 „	„
	Rejected	... ...	2 „	„
M. G.	1st Class	... ...	2 as. 9 p.	each
	2nd „	... ...	1 „ 9 p.	„
	Rejected	... ...	9 p.	„

In the forest, to allow for wear and tear in transit, the sleepers are sawn to the following dimensions :—

B. G. 10′ 2″ × 10¼″ × 5¼″
M. G. 6′ 3″ × 8¼″ × 4¾″:

the dimensions required by the railway authorities being respectively 10 × 10″ × 5″ and 6′ × 8″ × 4″.

The sleepers are then stacked and inspected by the forest ranger, who passes them and marks them with a broad arrow, as follows :—First, every sleeper is marked once on the broadside, to denote that it is Government property ; then a *first class* sleeper receives three marks on one of the narrow sides ; a *second class* sleeper receives two marks, and a *rejected* sleeper one additional mark, both on the broadside.

A first class sleeper must have the proper dimensions, must be free from cracks and knots, especially at about 18 or 30 inches from either end, according to the size (M. G. or B. G.) and must contain no sapwood. Second class and rejected sleepers fail in one or more of these qualities. The first and second class sleepers are then carried to the head of the sledge road at Chabbai and piled up in large stacks. Rejected sleepers can also be taken down to the Dun as there is a fair market for them in Dehra for building purposes.

The cost of carriage from the forest to Chabbai varies with the distance, the rates paid this year from the Dopta block being about 6 annas for a B. G. and 3½ annas for a M. G. sleeper.

For logging, the Kulu men use a two-handed cross-cut saw, and the Punjabis use an ordinary saw, about three feet long. An experiment was made in the presence of the students to test the respective merits of the saw used in Jaunsar, the new German saws from the Forest School, and the Punjabi saw ; two large trees were felled and sawn up into logs, with the following result.

The Punjabi, working by himself, took on an average six minutes to saw through a square foot ; the Kulu men, working two together, with M-tooth saw took 4·4 minutes to cut through a square foot ; with the upright isosceles triangle, took 5·3 minutes; and with the ordinary cross-cut saw, as used in Jaunsar, 10·9 minutes. This experiment, as far as it goes, shews that the Punjabi can do more work in a given time than the Kulu man, and that of the cross-cut saws, the M-tooth one is the best. These saws are manufactured by Messrs J. D. Dominicus and Söhne, of Remscheid-Vieringhausen, Rhenish Prussia, and cost about Rs. 5-8 each landed at Bombay.

We took advantage of the measurements of one of these trees to ascertain the reducing factor. The girth at the base was 128″ ; at 10 ft., 112″ ; at 20 feet, 106·5″ ; at 30 feet, 102·5″ ; at 40 feet, 98·5″ ; at 50 feet, 92″ ; at 60 feet, 89″ ; at 70 feet, 82″ ; at 80 feet, 75″ ; at 90 feet, 70·5″ ; at 100 feet, 63·5″ ; at 110 feet, 62″ ; there was an additional length of 30 feet too small for timber.

We thus obtain the mean girth of each log in inches, and multiplying the square of this by 0·08 we get the area of the mean section, and thus arrive at the true volume of each log. Adding all those together, we obtained 499·92 cubic feet as the real volume, and with 1274·31 cubic feet as the cylindrical volume deduced from the total height (140 feet), and girth (128″) at the base, we found 0·39 as the reducing factor. Last year we found 0·47 as the reducing factor for a tree 13 feet girth at the base. It is obvious that this factor will not tell us how many sleepers can be obtained from a tree of this girth ; all we learn is that the tree contains so many cubic feet. To ascertain the number of sleepers we must be guided by past experience.

We noticed heart-shake in the tree we cut up, owing probably to rapid growth ; the shake extended from the centre for 3 or 4 inches radially in opposite directions, and would render a portion of each log unfit for sleepers.

Manufacture of Deodar Oil and Chir Pitch.

This is effected by the destructive distillation of chips of deodar wood taken from the heart-wood of stumps. The kiln is made of stones and mud mortar, and is faced with lime inside. It is egg shaped, 5 feet deep, 4 feet greatest diameter at six inches above the base ; the base has a diameter of 2 feet, and the top of 2½ ft.

About 13 maunds of wood are put into the kiln and fire is applied at the top, and the supply of air is regulated by partially closing the mouth. One charge yields 2 maunds 10 seers of oil and 1 maund 4 seers of charcoal, and it is estimated that the cost per maund of oil delivered in Chakrata is Rs. 5-10-7. The oil is not pure, and at present there is no sale for it on a large scale, though it would doubtless prove a valuable disinfectant. It is a safeguard against bites of the "potu" fly.

A similar preparation is that of Chir pine tar, described as follows in the Journal for 1891 :—

"The tar is separated by subjecting small pieces of Chir pine wood to slow, incomplete combustion in a kiln, through which only a small supply of air is allowed to pass

The kiln is made of stones and mud mortar, the interior being faced with lime, and is egg shaped inside ; its height and also its maximum diameter being 5 feet. It tapers towards the lower end, into which is fixed a perforated iron plate. At the upper end of the kiln is an opening 2 feet in diameter.

The wood, cut into long strips 1 or 2 feet long and 4 or 6 inches round is introduced at the upper end of the kiln. The pieces of wood are packed as tightly as possible, the closer they are together the better. The upper opening is then closed with a dome of stones and mud mortar, three holes being left to admit air. The wood is lit from the top and burns downwards, the rate of burning being regulated by closing or opening the different holes.

The charge of the kiln is about 15 maunds, and it takes 6 days to burn, the volatile products being driven off and charcoal remaining in the kiln.

Crude tar, organic acids and water pass through the perforated plate at the bottom, and are collected in tins. Good pitch, the cost of which has been estimated at Rs. 4-8-0 per maund delivered at Meerut, has been made by driving off the water and organic acids.

The cost of the kiln was Rs. 13.

From 15 maunds of wood thus subjected, we get 6 maunds of charcoal and one and one-fifth maunds of crude tar.

The tar is used locally for railings, &c, and the pitch is used on iron roofs. There is probably a more ready sale for this production than for deodar oil.

The Deoban Karshu Forest.

Owing to delays in marching caused by the heavy winter snow, we were only able to devote one morning to the interesting forest on the slopes of the Deoban hills; hence what follows is taken principally from previous journals.

The Karshu forest occupies the top of the Deoban hill, at an average elevation of 8,500; it consists principally of Karshu oak, with spruce and silver, the latter especially in the western side.

On the northern slopes below Snow View, where the soil is fairly rich owing to a combination of shale and limestone, and the gradient not too steep (about 28°), the karshu oak forms an almost pure forest, and attains good dimensions. In 1888, we measured the height of two oaks with Abney's level; one was 117 feet and another 94 feet. We also measured an old stump which had a girth of 15 feet.

The natural reproduction of this oak by seed is fairly good; on a piece of ground 10' by 10' we counted 205 seedlings, which gives about 90,000 per acre. This, however, was in an area free of *Strobilanthes*, which, as a rule, covers the ground in this forest. The history of this plant is exceedingly interesting, and for a full account of the species found in the Nilgiris, see a paper in the *Indian Forester*, Volume XIV, No. 4, for April, 1888, by Mr. Gamble. The chief species found at Deoban are *S. Wallichii*, and *S. alatus*. Every year the upper herbaceous portion breaks off at a node, leaving the woody stem beneath, which increases in length by one or two inches every year, until at the time of flowering, when the plant dies, this woody portion is two feet high, the height of the whole plant being five feet. The last seeding took place in 1881-82; the new shoots (the woody portion) are now from 12 to 15 inches high and about eleven years old. When the next flowering will take place we do not know, but it is believed that the whole term of this plant is about 12 years.

In all probability it is only when this plant dies down that the young karshu seedlings are able to force their way successfully through the dense network formed by the roots.

The *Strobilanthes* is a plant which flourishes under the dense cover of the silver fir; it is also a favourite fodder for sheep and goats, but grazing cannot, of course, be allowed here as the karshu seedlings would be destroyed.

In July, 1887, Mr. Moir sowed karshu acorns in contour lines six feet apart, but they were nearly all destroyed by the larva of a moth. This acorn has numerous enemies, principally birds, squirrels, and bears. The karshu acorn is ripe in July and August, and

germinates as soon as it reaches the ground. The germination of this oak is peculiar. From the acorn there issues a long cotyledonary tube at the end of which is carried both the radicle and the plumule. The radicle then forms a thick carrot-like tap-root, fed by the nutritive materials from the cotyledons, and the plumule bursts out from the crown of this taproot. On this subject, the reader is referred to *Indian Forester*, *Vol XVII*, p. 48, for an interesting article by Pandit Keshavanand. The germination of the Moru Oak is somewhat similar.

The sowings were renewed in 1888, and the countings we made shewed on an average one seedling per foot of contour line. They are now thoroughly established and are doing well, although the rate of growth at this elevation is necessarily slow.

In 1892, the students pulled up the *Strobilanthes* by the roots over an area of about 1-12th of an acre ; and this work has since been continued, and there is now an area of 5½ acres quite free from *Strobilanthes*. We found numerous seedlings in the cleaned area and it is expected they will grow all the better for this operation. The cost is about Rs. 6½ an acre. The natural reproduction by seed of this oak presents matter for further study, and we cannot as yet determine what is the best kind of felling to make in these forests ; one point should never be lost sight of, and that is, at this elevation, wind, storms, and heavy snow have to be taken into account, and the selection method by which the cover is kept as complete as possible, is indicated. On the western side of this hill, there are patches where the selection method may be shewn as a type, chiefly in silver fir ; but on the northern side, in the Karshu oak, we do not find all ages mixed on the ground. The present appearance of the forest, where fuel fellings have taken place, is that of a severe seed felling, and it remains to be seen how the reproduction will come on.

There are many interesting species in the undergrowth, of which the more important are :—*Skimmia Laureola*, a small shrub belonging to the N. O. *Rutaceæ* with a strong aromatic odour ; the native name of this plant is " Kustoora chara, " and the odour of the musk deer is popularly supposed by the hillmen to be derived from the leaves. *Salix daphnoides*, a willow with lanceolate glabrous, slightly serrate leaves, glaucous beneath, capsule glabrous. *Viburnum cotinifolium*, N. O. *Caprifoliaceæ*, leaves with dense grey tomentum underneath, ovate or rotundate, 3 to 5 inches long, with short thick petiole. *Viburnum nervosum*, *V. stellulatum*, *Spiræa canescens*. a species of raspberry *Rubus niveus*, various species of *Lonicera*, *Berberis*, and many others.

Another interesting species is the larger ringal (*Arundinaria spathiflora*) ; it flowered all over Jaunsar in 1882, and a few of the dead stems may still be found, though they are quite rotten ; it is chiefly used as pipe stems, and it also forms excellent fishing rods for trout and mahseer. The ground is covered with young seedlings, which are now about six feet high. It will be some years

yet before the stems of this bamboo attain the height and size requisite for fishing rods, and it is probable that the term of this species is longer than was originally supposed. It can be at once distinguished from the lower elevation bamboo, *A. falcata*, by the cross veins.

In the Jadi block, just above the road to Kanjatra, there is a small karshu coppice of 1882; the average height of 282 shoots in 1888, was 4 feet 8 inches, and the average number of shoots per stool was 5½; very few standards were left, but a quantity of willow has come up on the ground; the aspect of this *coupe* is south-west. In 1891, the average height of 400 shoots was 6 feet 8 inches.

Another coppice in the Mohna block below Chakrata, view with a northerly aspect and cut in the same year, was also examined: the average height of 107 shoots in 1888 was 4 feet, and the average number of shoots per stool was seven. Only the leading shoot in each clump was measured. In 1892, we found the average height of the leading shoot in each clump to be 6 feet 3 inches. The karshu oaks pollarded in 1878, near the coppice in the Jadi block, shew an average height of 15 feet.

In the Journal of 1891, we found the following data regarding the rate of growth of karshu :—

"The students measured the girths of the Karshu and Rai in the sample plot in the Jadi block below the road to Bodyar: the results of the measurements since the beginning are given in the following table, which refers to the growth of the Karshu oak :—

Number of trees measured.	Class girth.	Mean Girth 1883.		Mean Girth 1891.		Mean increase		No. of years required for an increase of 1" radius.
		Ft.	in.	Ft.	in.	Ft.	in.	
60	Under 1½'	1	1·0	1	4·2	0	3·1	17·00
58	1'—3'	2	1·4	2	5·1	0	3·7	14·00
16	3'—4½'	3	8·2	3	11·6	0	3·5	14·75
2	4½'—6'	5	0·5	5	0·5	0	2·2	23·55

The measurements made, so far, seem to shew that it will take 180 to 190 years before this Oak attains a girth of six feet. Countings of rings on stumps which were made in 1892 serve to corroborate this.

The Deothat Nursery.

This nursery, situated in the Mohna block about a mile below the bungalow, was instituted in 1878 for the purpose of raising plants to re-stock the blank slopes. Water is led by means of a small canal from a neighbouring spring, and stored in casks; and the beds are hand-watered wherever necessary. In 1891, there were about 17,500 Deodar transplants which have since been put

out ; and in 1892, about 12,000 plants were pricked out, either into nursery lines, or into baskets. This year there are 20,000 Deodar, and 20,600 Silver fir. The beds are protected against the sun by means of grass tatties.

Various plantations have been made from time to time in the Mohna block. In Katbau—North we visited plantation No. 4 of 1881 on an easterly aspect and gentle slope. It was sown with Deodar in 1881 and subsequently with blue pine in vertical lines and re-sown in 1882. Vacancies were filled up in 1883 with transplants from the Deothat nursery, and with spare plants from neighbouring patches. The first sowings were made too thickly, and in 1891, superfluous plants were cut out ; we counted 76 stumps in one patch : with three plants left to grow. The following measurements have been made :—

1891,	average height	135	Deodar	... 4 ft. 5 in.
1892,	do.	574	do.	... 4 ft. 7 in.
do.	do.	77	blue pine	... 3 ft. 7 in.

The average length of 26 annual shoots of deodar was in 1892, 10½ inches. Here as elsewhere deodar does best when sheltered by the pine.

In Rangai—North, we inspected plantation No. 5 of 1881. The soil is shallow and rocky and the general aspect is South. Deodar was sown in 1881 in patches 4 feet apart, in horizontal lines 15 feet apart. Blue pine was sown subsequently and vacancies were filled by putting out deodar plants in 1883. Lower down, where the soil is deeper and the area is protected by spurs on either side, the deodar is doing much better.

In compartment 14 of the Mohna Block, beyond Kauntilani, is situated a plantation of 1881. Deodar and blue pine, raised in the nursery, were put out in August 1881, when about 2½ years old (seed of 1878), in alternate lines 14 feet apart. The aspect is S. and S. W.

In 1888,	average height	of	deodar	... 5 ft. 0 in.
do.	do.		blue pine	... 10 ft 0 in.
1892,	do.	of 31	deodar	... 7 ft. 3 in.
do.	do.	„ 51	blue pine	12 ft. 0 in.

The average length of 31 annual sheots of deodar was 11 inches.

In all these plantations in the Mohna block it would have been better had the plants been sown or put out much closer, say 5 ft. × 5 ft..

Sowings in Kanjatra Block.

In 1885, spruce and silver fir were sown in contour lines one foot wide, and 8 to 10 feet apart. The growing stock is young spruce fir, with a little silver, on a north westerly aspect and the natural reproduction is almost nil. The total length of of the lines is about 18 miles, and the cost of making them was Rs. 164.

The following method of recording the success or failure was adopted : a stick four feet in length is placed along the line ; if one or more seedlings are found within that length, it is recorded as a success, if none are found, it is considered a failure. Counting on this system in 1888, silver fir showed a success of 50 per cent., while spruce fir showed a success of 32 per cent. As the two species were sown in alternate lines, at any rate below the road, this shows that the spruce fir has largely died out ; the reasons for this probably are :—1st, want of sufficient light ; 2nd, too much moisture ; for a little further on, where the lines turn round a spur, we noticed that the spruce fir had done very well.

In 1891, the success of both species was estimated at 40 per cent ; and in 1892, the success was found to be 37½ per cent. Another method of shewing the results is to say that there is a plant on an average to every 6½ feet of line. In 1892, a spruce seedling was found with a height of 18in., and another with a height of 16 in., and two silver firs gave an average of 10 in. In the forests beyond the Kanjatra block, good natural regeneration of silver fir was noticed under thick cover : spruce fir found naturally where the cover was very light or interrupted, being as a rule, confined to the ridges.

We inspected the fuel works in compartment 5 of Kanjatra forest, Deoban Hill. The following general description applies to fuel works in this range :—

After the trees are felled, they are cut up by means of the cross-cut saw into lengths of two feet ; these logs are then split by axes and wedges into pieces of convenient size, no piece being allowed to weigh more than 12 seers, or to be more than 9 inches diameter. The fuel is then placed in stacks of the following dimensions, 21 feet long, 6 feet high and 2 feet broad ; this is supposed to contain, and is counted, as 200 cubic feet of fuel, 1 foot in length and 1 foot in height being allowed for shrinkage, loss in re-stacking, &c. The rates paid for felling, logging, and stacking are as follows :—Oak, Rs. 2 per 100 cubic feet ; fir, Re. 1-12-0 per 100 cubic feet ; this work is done entirely by hillmen, who earn in the course of the year about Rs. 2,300 at this work alone.

The fuel is carried on mules and ponies to Chakrata, at the following rates :—

Oak, Re. 1-6-0 per 100 cubic feet per mile.
Fir „ 1-2-0 ditto ditto.

Every quarter of a mile is marked along the fuel roads,and the nearest quarter of a mile to the fuel stack is taken into consideration when paying the carriers. At the present rates received for the fuel in Chakrata, it does not pay to carry the fuel from any place outside a radius of 12 miles from that station, hence the forests in the Deoban range must remain the chief source of supply for some time to come.

The trees to be felled are selected either by the ranger or the divisional officer : a small blaze is made on the tree and it is marked at the base with the divisional hammer. The tree is felled by the axe at about two feet from the ground, and is generally made to fall sideways. Felling by the axe causes a good deal of waste, but it is found almost impossible to cut large trees with a saw.

The weight of 100 cubic feet stacked oak fuel is about 40 maunds when fairly dry, and that of 100 cubic feet fir fuel about 28 maunds.

Wherever fuel works are going on, a series of roads or carrying paths four feet wide have to be made. As a rule they have to be metalled, and the Deoban limestone furnishes a good material for this purpose, whereas the shale is too soft and only lasts one season. These paths cost about Rs. 4 a chain to make and Rs. 2 a chain to metal. When the fuel works are over for any particular locality, the paths are allowed to fall into disuse ; but when the next felling comes round, they are easily cleared at a small cost and can serve again.

The fuel supply for Chakrata, which amounts to about 1,40,000 st. cubic feet per annum is derived from various forests in the Deoban Range :—Deoban, Lokandi, Konain, Kophti and Hajawa, besides the coppices at Gidhi Khud, Korwa and Kalsi.

Recruits for the Forest Department.

Under somewhat recent arrangements, based on the recommendations of the Public Services Commission, the Forest Service in India, as most of our readers are aware, has been divided into two main and entirely distinct Divisions known as the Upper Controlling Staff, and the Lower Controlling Staff. They might equally be termed, the Imperial and Provincial Services. The former is now recruited entirely and without exception in England, while the latter is recruited in India. Appointments in the Provincial Service are graduated from the lowest grade of Ranger on Rs. 50 a month, to the highest grade of Extra Deputy Conservator on Rs. 600, and the duties and responsibilities of Extra Assistant, and Extra Deputy Conservators are the same as those of Assistant and Deputy Conservators in the Imperial Service. The principle that men serving in their own country cannot expect the same rate of remuneration as those serving in foreign lands, restricts the salary of men in the Provincial Service to 2-3rds of that in the Imperial, in accordance with the rules in force in this respect.

With this explanation, we purpose to consider the question of the recruitment of the Department and whether the existing state of things satisfactorily provides the necessary recruits in sufficient numbers and with the desirable qualifications.

I.

For the Upper Controlling Staff, the members of which undergo a course of training at Coopers' Hill and on the Continent, it has been decreed that the Entrance Examination in England should be assimilated to the Entrance Examination for Sandhurst and the main object to be borne in mind with reference to this Examination is laid down as follows: "*to secure a youth who has had a thoroughly well grounded liberal education as an English gentleman.*" A recent prospectus, too, informs us that the Examination of candidates for the Police Department is to be "*simultaneous with and in the same subjects and papers as, the Examination for the Indian Forest Department.*" This general standard of Entrance Examination is doubtless most convenient for the Masters of Schools and for those whose business it is to specially prepare boys to gain admission at one or other of the doors opening to a career, but such a system goes to debar many boys from the selection of that career for which they are naturally most fitted and in which, by the early study of those subjects for which they have most taste they would be most likely to distinguish themselves in after life. Moreover, it is calculated to act adversely to the growing tendency in all Public Schools now-a-days to encourage the study of science at the expense of the classics. But apart from these considerations, there is the all important objection, from our point of view, to such an examination that it admits young men who know nothing of the sciences, and who, therefore, spend most of their time for the first year or year and a half at Coopers' Hill studying Chemistry, Physics, and the elements of Botany and Geology. That this is so, has been stated on the best authority, and it is fully borne out by the results of the Examination held last June.

The obligatory subjects are now (1) Lower Mathematics (2) English Composition (3) German; in all of which we venture to think half, instead of ⅓rd marks might well be exacted Of 36 candidates for 9 appointments, 28 took up French as one of the two optional subjects, and 28 chose either Latin, Greek or English History. Two only were examined in Physics, two in Botany, six in Chemistry, and six in Geology. Not a single candidate attempted Higher Mathematics. Of the nine who passed, three had a knowledge of Chemistry, one of Chemistry and Physics, one of Botany and Geology; while three owed their success to Latin and French and one to Latin and Greek. The proper course would, in our opinion, be to strike out Latin, Greek and English History from the optional subjects, and to allow candidates to take up any three of the remaining six, *viz*, Higher Mathematics, French, Chemistry, Physics, Botany, Geology. It may be accepted that three-fourths of the candidates would take up French, and a knowledge of two of the remaining five subjects might be readily insisted upon. Youths would certainly be forthcoming from the 'Modern Side' of the Schools, and it would not be any unreasonable demand on Messrs. Wren and

Gurney and others, that their candidates should undergo a special preparation before being acceptable for the Forest Department. If this were done, much time would be turned to better account at Coopers' Hill, more suitable material would be obtained for the Department, and recruits would find the life and pursuits of a Forester more to their liking. At Coopers' Hill itself, the course of study has now been arranged on excellent lines for the period of three years. We understand it to be, in a general way, as follows:

(1). For the first one and a half years the Students remain at Coopers' Hill where, while studying the auxiliary sciences, they are instructed in sylviculture and forest mensuration, have practical work in nurseries and the neighbouring woods and are then shown over some specially selected forests in Normandy.

(2). Then there is a practical course of five months in Germany, under selected Prussian Ober Försters, directed by Sir Dietrich Brandis, K. C. I. E.

(3). The third year is spent at Coopers' Hill and devoted to the completion of the study of Forestry, the preparation of Working Plans, etc.

(4). Finally some of the most promising Students are deputed to visit forest districts in Germany on their way to India.

It is hoped that the above programme will be fully worked up to, and that it will not be curtailed or crippled by the all absorbing desire at Coopers' Hill to make the College self supporting in other respects.

If the course of study at Coopers' Hill and of practical training in France and Germany is such as will best meet the requirements of the Department, and we fully believe it is, the cost should be met and the India Office called upon to provide the necessary funds. Because the education of a Forest Officer is costly, it is no sound reason for sending insufficiently taught recruits to India. We quite accept the view that Government should obtain the men they require as cheaply as possible, but deprecate the false economy which, for the sake of keeping the cost within the College fees, would fill the Department with any but men fully qualified for their duties. A sufficient sacrifice was made to the Royal Engineering College, when that was first fixed upon as a substitute for what were then more efficient training grounds for Forest Officers, and now that the present scheme has been worked out and adopted, after eight years of untiring energy on the part of those directly responsible for the training of the young men, no financial considerations, which can at best be only of trifling import compared with the present value and future possibilities of the vast State properties to be administered, must be allowed to prevent its being fully carried out.

NOTE:—The recruitment of the Lower Controlling Staff, will be dealt with in a separate article (II).

Forest Administration in Oudh.

An important question affecting the welfare of the State Forests in the Gonda and Bahraich Districts of the Oudh Circle has just been finally decided by Government and a short history of the case may be considered interesting and instructive enough to be placed on record in the pages of the 'Indian Forester.' The Forests of the Oudh Circle were the property of the State unburdened with servitudes of any description, but in 1876 a special commission was appointed to enquire into the question of forest management in its relation to the agricultural necessities of the Province and the proposals of one of its members Captain (now Colonel) Pitcher, acquiesced in, practically entirely, by Government. These proposals included a recommendation that certain concessions in free produce and grazing at reduced rates granted to villages residing within a limit of 3 miles of the State forests, advantages conceded so far back as 1865, should be continued to these villagers, and this principle was approved of by Government, generally and lists of privileged villages were ordered to be compiled. Captain Pitcher however pointed out that in the Tulsipur parganas of Bahraich and Gonda the State forests had been already freed from the burden of providing free produce and grazing by the gift to the Maharajah of Balrampur, the owner of these parganas, of an area of State forests equal to about one fifth of the extent of the Reserves in the Gonda District and he placed on record that, in drawing up for Government sanction a list of privileged villages, those within 3 miles of the State Forests in these parganas should be excluded therefrom. So far there was nothing to complain of in the procedure adopted, and had the terms of agreement on which the 40 square miles of forest land were ceded to the Maharajah been committed to writing and duly signed by the interested parties, no future difficulties would have arisen. Unfortunately however no such arrangement, which might have been considered to be an ordinary business-like transaction, was ever completed, and disputes immediately arose as to the terms on which this gift of a large area of valuable forest was made. The Department held, and, so far as can be ascertained from the correspondence, with justice, that the remainder of the State Forests in the Gonda District under their charge was freed for ever from the burden of providing grazing or produce to the Maharajah's tenantry, whilst the Maharajah on the other hand insisted that this ceded area was only to supply a portion of his tenantry with their requirements in forest products and that the remainder had still a claim to be supplied from the restricted area of State Forests. This dispute was continued for some time during which the tenantry of the Maharajah grazed their cattle in the State Reserves, the payment of dues being postponed pending settlement of the question. The

amount due from the Maharajah reached a very considerable sum and ultimately by executive order of the Local Government permission was given to him to graze cattle in the State Reserves at reduced rates whilst his tenantry continued to extract free produce from those forests. The 40 square miles of Forest handed over to the Maharajah remained his absolute property and no rules were laid down as to the disposal of produce therefrom although this area was originally ceded for the benefit of his tenantry. It must not however be supposed that these results were acquiesced in by the Department who thus found itself not only ousted from the management of the fifth of the original area under its control but besides had to supply produce from the restricted area remaining in its charge ; but it was not till 1889 that an opportunity again occurred of reopening this vexed question. In that year the first so called Balrampur grazing Lease, by which free produce and grazing at reduced rates were enjoyed in the State Forests expired, and every effort was made on the part of the Department to oppose its renewal. The reasons for this opposition were good. During the period of the first lease the value of the State forests had largely increased, communications were improved and the enforced opening to grazing of a large proportion of the area of State Forests had become harmful to the general protection and improvement of the forests and therefore injuriously affected the revenue. But the efforts of the Department proved unsuccessful and a new grazing Lease was sanctioned by which for a period of 7 or in certain circumstances of 10 years, 50,000 head of cattle might graze over State Forests in Gonda ; while it stipulated that not more than one half of the whole area (155 miles) should be closed to grazing, and moreover contained a clause to the effect that the grant of free produce should be continued to the tenantry as heretofore. The Department now found itself in a worse position than ever ! The 77 square miles of reserves to be kept open to grazing were selected from the total area in localities easily accessible to the requirements of the Balrampur tenantry and the open areas were so distributed that practically the whole of the Reserves in the Gonda district were worked to suit the convenience of the tenantry of one land owner. Relief, however, unexpectedly arrived in 1893, for whilst compiling the Register of Reserves for the circle it was discovered that no list of privileged villages had ever been sanctioned by Government for the Gonda District. and on the preparation of this list being ordered, former correspondence was brought up which conclusively proved that for 16 years the inhabitants of the District had been in receipt of free produce on the authority of lists prepared without the sanction of the Local Government. At this distance of time it appears fortunate that the laxness of the Forest and District officers in complying with Government orders occurred, for otherwise an authorized list of privileged villages might have been attached to the record of the Balrampur grazing lease and more troubles have arisen. But be

that as it may, the opportunity had again arrived to represent the difficulties caused by the present state of affairs and this time to a Government willing to acknowledge the Provincial and Imperial value of forests and averse to sacrifice these interests for the temporary benefit of an individual or even of a generation. In deciding this case it had to be taken into consideration that the Balrampur state had enjoyed very considerable concessions for many years and that Government were to a certain extent bound by the executive order of their predecessors in the so-called grazing lease but fortunately the question of the claims of the Estate had already been reported on under the orders of Government in 1876 by Captain Pitcher, and although the conclusions arrived at by that officer were different to those expressed in his special report on the management of the forests in reference to the agricultural requirements of the tenantry issued a few days later, yet it could not be considered unfair to accept with his other proposals for forest administration also those relating specially to the concessions claimed by the Maharajah. At that time when all circumstances connected with the free gift of an area of 40 square miles were fresh in the memory of those interested in Forest management, Captain Pitcher appears not to have experienced the slightest doubt that the considerations for this gift had now been fulfilled by the Estate, but he was also apparently of opinion that the vacillation of the Department and the absence of a written agreement had rendered a summary settlement of the matter somewhat difficult. He proposed, therefore, alternative courses, which speaking generally were : the one that the 40 square miles of forest land should revert to departmental management and the whole area of State reserves be burdened with the supply of free produce and grazing to the surrounding tenantry ; the other that such tenantry as the Maharajah could not or would not supply from these 40 square miles should receive produce *on payment* from the State forests. It is strange that neither of these proposals were acted upon at the time, and that in 1893, 16 years later, the latter alternative should be accepted in solution of a question which up to the present had remained unsettled. This settlement it must be explained is more favourable to the forest than would appear at first sight, for the struggle between the Estate and the Department was not based on the necessities of the tenantry. Fully 50 per cent. of the so called privileged villages did not avail themselves of their privileges, especially in grazing where payment was required ; and it is confidently expected that under the new rules the demand on the State Forests will not be large enough to cause any serious drain on them nor to hamper their future systematic management. The number of cattle entitled in future to graze on payment will be limited to such whose owners can prove necessity for the use of State Forests, and certainly will not amount to more than $\frac{1}{3}$ of the number permitted to graze under the so called Lease, whilst the

exaction of a payment for produce however small will reduce the demand to actual requirements and prevent waste. It has been said at the commencement of this article that the subject was interesting and instructive; the interest to a forester consists in observing how in the young days of conservancy the department possessed insufficient influence to efficiently protect State Reserves and, aware of its weakness, appears to have shown hesitancy and variation in its plan of action ; instruction is amply conveyed when reflecting that this whole series of troubles was caused by an omission to obtain over the signature of the contracting parties a written agreement embodying the considerations for which the gift of forest land was made. Owing solely to this omission we have the strange spectacle of the claims on a State Forest being commuted by handing over to the use of the tenantry a large area of forest land, and then of the same Government which made this gift burdening the now restricted area of Reserves with the same concessions, and moreover granting these concessions in such a manner as to seriously interfere with the management of the whole forest area. For 16 years, these concessions have been enjoyed without right or title and so intricate was the entanglement caused by the carelessness of former executive and administrative officers that Government while of opinion that no benefit had been reaped by the gift to the Maharajah could not find it expedient to at once cancel the grazing lease and order the management of the Reserves to revert to the Department. We can therefore congratulate ourselves that the matter has now been finally settled with justice to the forests tempered with due consideration for the tenantry.

O. C.

Another effect of the influence of Climate on Forest Vegetation.

It is generally known that the character of forest vegetation mainly depends on two causes—the locality and the climate. The latter cause is probably the more powerful element in this respect. It is simply due to the change of climate that some trees which form very extensive forests in the moist region would simply vanish in similar localities where the annual rainfall does not exceed 20 inches ; while there are others which would hardly be found except in localities where the annual rainfall falls below 20 inches.

As an instance of the first type of trees may be mentioned the three-needled Pine of the Himalayas, while the Edible Pine and *Quercus Ilex* may be mentioned as representing the latter kind of trees.

Again there are others which would grow both in the dry as well as in the moist climate, though they may not attain equal dimensions under both these circumstances. Deodar, the most important tree of the Himalayas, is one of such trees.

The great difference between the size of the trees of *Pinus longifolia* found in Khanpur in the Hazara district where the climate is comparatively dry, and those found in Nûrpur in the Kangra District, is no doubt owing to no other cause.

Now, it is true that Deodar does not confine itself to the moist region of climate nor does it ever suffer from an excess of moisture in the air, but the further we penetrate into the Himalayas in the dry region of climate, the slower we find its growth.

And all slow growing species, are, I believe, much more valuable as timber trees than the fast growers.

The inference may therefore be drawn that a Deodar tree which grows in a dry climate where its growth is comparatively slow will yield a more durable wood than the one which comes up in the moist region of climate. But the case is just the reverse.

If the Deodar wood grown in the dry climate remains exposed to sun and rains for a time it changes its color and cracks and splits very badly. Nor does it contain a sufficient quantity of resin. So it is much lighter than, and consequently inferior to the rapid grown wood of the moist climate.

Besides the slow growth and small size of trees, the inferior quality of wood is therefore another thing which is due to climatic influence.

The very marked difference in the quality of the Deodar wood sold at the different sale depôts in the Punjab is probably due to this one cause.

The Ravi Deodar is said to be the most durable. Next to it comes, I believe, the Chenab Deodar and the Jhelum Deodar is not inferior to that of the Beas, which latter is much superior to that of the Sutlej.

Now, what is said of Deodar wood under such circumstances is equally true of all other species.

Thus as a matter of fact the climate forms the mainspring of the machinery which regulates all important changes in the Forest vegetation.

KULU,
18th May, 1893.

MIAN MOTI SINGH.

II.—CORRESPONDENCE.

Publication of Forest Statistics.

DEAR SIR,

It would interest many of your readers were you to publish annually a comparative statement exhibiting the total Revenue and Expenditure (A and B) as well as the area in square miles of each Province under the Government of India and the Presidencies of Madras and Bombay (Sind to be shown separately). It is presumed these figures are always at your command, and can be tabulated with facility. Conservators doubtless have them ; but Divisional Forest Officers cannot always obtain them. Besides it is befitting that a magazine like "*The Indian Forester*" should supply this information to its readers for it is not only to Departmental men that it finds its way. It would be interesting to see which Province or Presidency is the most lucrative from a forest point of view to be State.

G. E. M.

We will endeavour to comply with our correspondent's request at an early date. The information he refers to is, we believe, all regularly given in the Inspector General's yearly summary which is widely circulated and which we hope soon to review.

HON. ED.

Forest Administration in the C. P.

SIR,

The article on Forest Administration in the Central Provinces in your September number shows that province as about to pass through an important epoch in its forest history. As one who has no personal acquaintance with those vast forests, I should be glad if Tuscan would enlighten me on a few points.

Over one-fifth of the area in the Northern Circle or 2,249 square miles is to be excised from the Government Forests presumably for the purposes of cultivation. Is there any possibility of this large area being rapidly settled by bonâ fide cultivators seeing that there are 11,014 square miles of malguzari and zamindari forests in the same tract, much of which also is, presumably, fit to be brought under the plough? Is there no danger of much of the land being acquired by such classes as banjaras simply for the sake of working out all forest produce of value to the great present detriment of Government Forest Revenue; and when everything has been exploited, will not they abandon their settlements, without having brought the land under permanent cultivation at all?

I understand that the closed forests are not worked at all or only in rare instances, and that, as a rule, forests are not worked unless all the kinds of trees composing the stock can be sold; thus, when there is no sale for firewood in a mixed forest, the timber trees are left unfelled, although there may be a good market for them. If this be the case what is the reason of the rule, and may it not happen that no firewood will be saleable for the next half century or longer?

From a valuation survey of not quite 200 acres, working plans are to be framed for over half a million acres and it is apparently contemplated to work nearly all the forests in the province on the Coppice with Standards method of treatment and on the strip system. Eventually, therefore, there will be from 10,000 to 15,000 square miles of Forest throughout the province presenting the appearance of a vast chess-board with small parallelograms 10 or 20 chains long by 5 chains broad. This seems an ambitious programme even for the Indian Forest Department and it would be interesting to hear whether the coppice with standards system is to be applied also, as is understood has already been done in some instances, to the reserved forests, and to those where timber growing is the most important object. Why has the strip system been chosen; it is most troublesome to carry out in practice, and is generally only employed in exceptional circumstances, but here apparently strips are to be made irrespective of the nature of the ground, of the climate or of the stock?

The method of calculating the area of each working circle seems peculiar. A valuation is made of the outturn of about 200 acres of forest, 30 standards being left to the acre. The yield in timber and fuel is found to be 5 tons per acre. As the requirements of each neighbourhood are known with tolerable accuracy, taking 30 years as a suitable rotation, the area of each working circle is determined on this basis, but then, strange to say, we find that the number of trees to be reserved per acre is fixed at 60 instead of 30 *besides all trees having a circumference of 3 feet.* The reservation of so many additional trees must completely upset the previous

calculations as to yield and if no trees of three feet in girth or over be cut, will not the timber supply be materially reduced? Will it be possible always to find such a large number of reserves and is it advisable in the interest of the coppice to retain so many?

Apparently, the forest area is at present sufficiently large in many localities in proportion to the demand for forest produce, to admit of only portions being marked off as working circles. In such cases, where is the necessity for rigorously defining the area of the working circle at all? For example: there is a forest of 1,200 acres, of which it is estimated 20 acres per annum will suffice to meet the present demand for forest produce after adding 50 per cent to meet a probable future increase in the demand. Then, the rotation being twenty years, the working circle, would be 600 acres or half the forest. The estimate, however, of the yield and of the probable increase in demand being of necessity very rough, why not simply leave the area to be worked yearly to depend entirely on the demand, with the proviso that the area worked over does not exceed 40 acres, the possibility of the forest?

TAU THA.

"Border" on Esprit de Corps.

SIR.

I am sorry that "Border" compels me to take up some of your space in self defence. I feel no "contempt" for brother foresters of any class. A correspondent having asserted that Cooper's Hill men were the élite of the Department I simply ventured to remind him that he was a little too previous, as it will be some years before Cooper's Hill names occupy the top of the list. There is no shadow of "contempt" in this, and it was written as a perfectly colourless argument relevant to the point under discussion. Neither have I any but kindly feelings for our "untrained" brothers, though I did, and do, smile rather loud at an egregious contention put forward on their behalf. I fancy the Secretary of State would smile too, at hearing unskilled labour declaring aloud in the market that it was at least as good as skilled labour. It is antics such as this that imperil our union, rather than a hypothetical contempt attributed gratuitously to

VELLEDA.

III.—OFFICIAL PAPERS & INTELLIGENCE.

Reorganization of the Executive Staff.

The following is the text of the Despatch sent Home in May last on this subject by the Government of India.

In despatch No. 312 (Financial), dated the 1st October 1890, we intimated our intention of subsequently taking into consideration the reorganization of the Executive Staff of the Forest Department. When maturing our proposals for an increase in the strength of the Superior Forest Staff, contained in that despatch, we had in view the probable necessity of reorganizing the Executive and Clerical Staffs as a necessary complement to the general scheme which has been under consideration since the receipt of Sir D. Brandis' letter of the 5th August 1886, forwarded with Lord Cross' despatch No. 83 (Revenue), dated 23rd September 1886.

In pursuance of this purpose as regards the Executive Staff, Local Governments and Administrations were asked, in January 1891, to state the number of Rangers, Deputy Rangers, Foresters, and Guards considered indispensable for the efficient management and working of their forests. One of the material objects of the proposed reorganization was also the attraction of a better class of candidates for employment in the Subordinate Forest Service ; but Local Governments and Administration were enjoined, when submitting their applications, to keep in view the financial condition of forest-administration, as the Government of India could only entertain proposals for increased expenditure which were fully justified by the special circumstances of each case.

The replies received were summarized in a note by the Inspector General of Forests dated 3rd June 1892, in which the whole subject has been dealt with in detail. We should invite Your Lordship's special attention to this note, which is recorded in the Forest Proceedings of the Revenue and Agricultural Department for October 1892, Nos. 1—35. As the suggestions embodied in the note differed in some important respects from the proposals first submitted, Local Governments and Administrations were asked—before the case was taken into final consideration by the Government of India—to consider the revised scheme advocated by

the Inspector General of Forests. The amendments suggested by Local Governments and Administrations in regard to the Inspector General's scheme, as well as that officer's final proposals, are exhibited in convenient form in the tabular statement appended to this despatch.

We may here explain that the Bombay Government are not at present prepared to submit definite proposals, as the question of reorganizing the subordinate forest establishment in that Presidency is still under consideration by the Local Government, who contemplate the withdrawal of certain portions of the reserved forests from the management of the Forest Department, and are consequently doubtful whether the increase of expenditure proposed in the Inspector General's note of 3rd June 1892 will really be necessary. We do not, however, think it expedient on that account to further delay the final consideration of the question so far as other Governments are concerned.

The proposals as now finally revised have been formulated after very careful consideration of the actual requirements of forest-administration in the several provinces, and have, in our opinion, been framed with as much moderation as is consistent with the efficient protection, improvement, and economic exploitation of our forests. They involve an ultimate total increase of Rs. 4,13,6 88 per annum on account of permanent establishments, and a decrease of Rs. 87,048 under temporary establishments ; or a net increase of Rs. 3,26, 640 per annum. This amount will only be gradually worked up to as trained and suitable men become available ; and it is anticipated that the extra expenditure which will in all provinces, excluding Bombay, be incurred during 1893-94, if your Lordship accords sanction to the scheme, will not exceed the sum of Rs. 1,50,000. In communicating sanction to the scheme, if it is approved, we shall issue orders that its introduction in each province must be so regulated and restricted that the expenditure in connection with it in 1893-94. shall not cause the grant for the Forest expenditure of the province in the year to be exceeded.

Note on the Pests of the Teak Tree.

By Major C. T. Bingham.

At page 46, No. 2, Volume XVIII of the "Indian Forester," there is a note by Mr. J. Nisbet, Deputy Conservator of Forests, on the damage done to the teak plantations in the Pegu Circle by the larva of a moth.

This moth, called by Mr. Nisbet, "*Tortrix* (*Tectonæ* ?)," does not, so far as I know, occur in Tenasserim. During the past three years, while on tour in the forests, I have made careful search and been always on the look out, but have failed to find it. Quite recently also at my request Mr. P. W. Healy, Extra Assistant Conservator of Forests, went the round of the whole of the teak plantations, and over much of the natural forest in the Ataran valley, without coming across a single teak tree attacked by the pest.

As it was a matter of some importance to procure the moth and have it properly identified, on the 23rd April of this year I sent a servant, who has been used to collect insects for me, to Rangoon and by the kind permission of Mr. Jellicoe, Deputy Conservator of Forests, in charge of the Rangoon Forest Division, he was enabled to proceed to the teak plantations in the Magayi reserve, where the plague of caterpillars destructive to the leaves of the teak had set in. This plague, I believe, occurs annually in some portion or another of the Rangoon Division.

Some 50 or 60 larvæ were procured by my man, who returned on the 30th.

Unfortunately, I had been obliged a day or two earlier to go out into the district, and I did not return till the 6th May.

On examining the box containing the caterpillars, which had, according to directions I had left, been looked to daily and fed with fresh teak leaves, I found that the majority had not only pupated, but that a good number of the moths even had issued. Luckily, however, there were still some 12 or 15 remaining in the larval state.

The moths I found were of two species.

One, a soft dark robust-bodied moth, with an expanse of 1·3 inches, has been identified by Mr. Cotes, as a Noctues moth of the family *Hyblæidæ*, species *Hyblæa puera*, Cramer. On the *upper side*, the ground colour of the fore wing is ashy grey with a tinge of yellow shaded at the base of the wing on the disc, along the costa, and broadly along the outer margin with soft dark brown; hind-wing dark brown with an irregular band on the disc not reaching the costa, and a large squarish mark at the anal angle vermilion red. Cilia of the fore-wing dark brown, of hind-wing brown with a light wash of pink. *Underside*, both wings pale vermillon red turning at the base, along the costa and on the disc of the fore-wing to yellow; an irregular mark on the fore-wing and two spots at the anal angle of the hind-wing, with some indistinct shadings dark brown.

The larva measures a little over one inch in length. It is whitish yellow beneath, dusky greenish above. Along the middle of the back is a pale flesh coloured stripe with darker smoky brown stripes one on each side, which latter are each outwardly margined by an indistinct and somewhat interrupted white line. Head dark brown; a few erect dark hairs scattered over each segment.

The second species, Mr. Cotes informs me, is new to the Indian Museum collection,[1] but that it is undoubtedly one of the Pyrales and very close to *Paliga (Scopula) damastesalis*, Walker.

The following is a brief description of the larva and moth.

Larva: length 0.7 to one inch. Colour pale sap-green; two lines of purplish spots along the middle of the back. Head yellow; a few pale erect hairs scattered over each segment.

Moth: expanse 0 9 inches. *Upperside* pearly white with a slight creamy tinge; fore-wing marked along the costal and outer margins and across the disc with spots of red, forming on the last indistinct narrow red cross bands; hind-wing with the outer margin narrowly edged with the same colour. Ciliæ of the fore-wing alternately red and white; of the hind-wing pure white. Underside pearly white.

The larvæ that had not pupated had all turned by the fifth day after my return. Both species seem to take the same length of time over their metamorphosis, the moths issuing from the 8th to the 11th day after pupation.

The *Hyblæa* formed a rather flimsy cocoon either in the corner of the box, or along the mid rib of a leaf, dragging the sides of the leaf slightly together with the web. The *Pyralis* invariably rolled itself up in the edge of the leaf, holding it in position by a few threads

My recollection (for I unfortunately have mislaid the notes I took) of the ravages of these caterpillars when I was in charge of the Rangoon Division, is that they appeared in the teak plantations on or about the 20th May, sometimes in almost incredible numbers. Their ravages were confined to certain areas, where they re-appeared year after year stripping the young teak of their leaves with the rapidity almost of locusts, and hanging in thousands by webs to the branches of the trees.

It is quite possible that *Hyblæa puera* may, like the *Tortrix murinana* mentioned by Mr. Nisbet in the paper above quoted, pupate among the dead leaves on the ground, but, if so, I should fancy few individuals could survive, for a plantation attacked by these pests is a wonderful scene of activity. Numbers of jungle fowl, ground thrushes (*Pitta*), and insectivorous birds of all kinds crowd to the spot to feed on the caterpillars.

The *Pyralis*, as I have already said, rolls up the edge of a leaf and is thus rendered less conspicuous and saved from enemies. It certainly occurs in far greater numbers than the *Hyblæa puera*.

(INDIAN MUSEUM NOTES.)

MAULMAIN;
18th June 1892.

(1) The specimens have since been submitted to Colonel C. Swinhoe, who has kindly examined them and determines the species as *Paliga damastesalis*, Walker.

IV.—REVIEWS.

Reports on Botanical Gardens.

The reports on the Saharunpore and Mussoorie Botanical Gardens, the Horticultural Gardens at Lucknow, and the Gardens and Parks in the Nilgiris, for the year ending 31st March, 1893, have been received. As usual, the report for Saharunpore is the most interesting of the three. The Superintendent of the Gardens will in future look after District Arboriculture, for which he receives a small allowance. It is said that the absence of trained advice is often felt by the District Boards, but why have they never thought of the local Forest Officer who could easily give the benefit of his opinions especially in the rains, when probably most of the planting is done ?

The Jalap plant has been attacked by a disease, and its successful cultivation in the N. W. Himalaya appears to be extremely doubtful. In other respects many interesting experiments have been carried out, and we are glad to see cold water thrown on acclimatised seed, sold to Tommy Atkins at 8 Annas a pound, to produce "peas consisting of straw, tomatos of leaf and stalk, spinach running into flower, beets and carrots without roots, &c." in future only those kinds which do well though acclimatised will be distributed.

In the Lucknow Gardens, some of the Avenue trees have been attacked by fungus, probably arising from old stumps left in the ground, thus shewing the advisability of digging out stumps when old trees are removed to make way for young ones. *Eucalyptus tereticornis* has flourished more than any other species of gum, and the leaves have again been used for engine boilers. These gardens as well as those at Saharunpore very nearly pay their expenses.

The Nilgiri gardens with a favourable season have done very well, and have been maintained in excellent working order. Here the fluid extract from blue gum is used for boilers, and the results will be given in the next report, and the manufacture of Eucalyptus oil is now being undertaken by private persons.

The Cape Forest Reports for 1892.

This volume contains six reports, all of them of considerable interest and recording excellent work done, though as with other Colonial work, we should like to see more attention paid to the establishment of properly demarcated and settled state Reserves even at the cost of a diminution of the valuable planting work effected.

The first Report is that of the Conservator of the Western Circle, whose charge includes also the Cape Peninsula, and the plantations on the Flats, at Worcester and Kluitjes Kraal near Ceres. The Worcester Plantation consists of blue gum and is being worked in coppice for pit props, up to date it has given a surplus profit of £885. It is intended to fill vacancies with *Jarrah* (*Eucalyptus marginata*) which does well. The Kluitjes Kraal plantation of 500 acres has been found to have been too thinly planted and this is now being remedied by interplanting. At the Tokai Plantations on the slopes of Table Mountain, many changes have taken place ; the old Manor House, formerly the Conservetor's residence, has been given up, and the rather desultory sparse planting is been filled up to a proper distance and we are glad to see that greater use is being made of the Pines (*P. Pinaster and P. insignis* especially) which do so well at the Cape. It is also intended to grow the pencil cedar (*Juniperus bermudiana*). The large Tokai nursery supplies large numbers of trees to purchasers for planting in Cape Town and its suburbs and so serves a very useful purpose. On the Cape flats, the chief tree grown is a wattle (*Acacia saligna*) of which great things were expected as a tanning material. These expectations, however, have not been realized, but the firewood seems to sell well.

The Conservator, Mr. D Hutchins, very properly advises more planting in the Cape Town streets and there can be little doubt of the value of his advice. He also recommends wood paving for the streets, and says that in the Knysna forests, tongued and grooved yellow-wood flooring is now being regularly made, as that wood (*Podocarpus*) has proved superior to pine.

We are very glad to see that much attention is being paid to Table Mountain and in our opinion the whole available area on it should be reserved and the tree growth protected by systematic fire-belts, allowed to grow up, being assisted where necessary artificially. On the subject of fires, the Conservator expresses his feelings strongly and picturesquely as follows :—

" It cannot be too often repeated that these fires are the 'direct result of bad Forestry. A clean, dense plantations of oaks, 'and of most other trees, is quite safe from fire. And even in the 'case of Pines, a dense clean plantation runs little risk from fire

'after six or eight years of its existence. But the dirty, irregular, 'and sparse plantations, that are so common on the slopes of the 'Table Mountain, simply invite fires, and are sure to be burnt 'sooner or later. The approximate cause is of little consequence. 'The only result of squandering money on rangers and watchers 'is to postpone the conflagration, and make it worse when it does 'happen. I speak with 20 year's experience of the subject, 10 of 'which relate to India, where forest fires are an evil of terrible 'magnitude, but one that is successfully met and overcome. But, 'as regards Table Mountain, the subject lies in a nut-shell. It is a 'simple little question of bad Forestry, without even the difficulties 'that occur in the more severe climates of the Knysna forests and 'of the Amatola forests near King William's Town. An owner 'who allows his plantations to degenerate to a jungle of scattered 'trees and rank ground herbage, is a nuisance and a danger to his 'neighbours, and I trust before long will be brought under penal-'ties similar to the owner of a flock of scabby sheep.

'In the Colony, I have followed the history of the destruction 'of numerous tracts. The story is invariable. It begins with 'irregular fellings that are excessive in certain places. As the 'trees are opened out, herbage and bush cover the once clean 'forest soil, and then come fires. If the evil be not taken in hand 'at once and the burnt patches immediately replanted, they will 'gradually extend until the forest is pushed back to the dense 'kloofs, where it is nearly fire proof, though even here, if axe 'and fire act together as they did in the forests of the Stockenstrom 'division the kloofs will eventually be burnt out. The destruction 'of the Stockenstrom forests went on for many years, the forest 'being all the time under the strict Government Conservancy 'regulations which on the whole were faithfully carried out. 'But it was considered necessary to show a revenue, for which 'wood had to be cut' and the normal capability of the forest was 'exceeded. The natural law by which the dense forest protects 'itself from fire was broken and the inevitable consequence fol-'lowed."

A commencement has been made in the training of forest officers, and Mr. C. B. McNaughton was sent to Coopers Hill for training and is said to be doing well there.

The Midland Circle Conservator has charge of the great Knysna Forests where the chief tree is 'Stinkwood' (*Oreodaphne bullata*) and work chiefly consists in supplying sleepers for the Government Railways, while improvement works are not neglected, for we see that a large area has been gone over in improvement thinnings in order to free Saplings of Stinkwood and other valuable kinds. Demarcation and survey are also going on and the following description of the demarcation work will be read with interest in this country.

"The boundary lines of the reserves are laid down on the 'ground (except where unnecessary, as along the crests of moun-'tains, &c.) by means of live beacons placed in preference on the 'tops of the ridges that are intersected, so as to be visible from 'each other. Through the forest the clearing of these lines 'becomes a long and tedious operation which costs nearly £10 a 'mile in labor alone. The lines are set out daily or almost daily 'with a theodolite, but a forester is usually competent to produce 'them alone during the intervals between each setting, by means 'of a prismatic compass.

'It is intended to replace those corner beacons of the reserve 'to which materials may be carried by permanent beacons. The 'importance of this work can scarcely by overrated.

'Without substantial beacons, many of the boundary points 'become lost or altered within a few years, and it has been my 'unfortunate experience to find that many of the ordinary proper-'ty surveys within these districts, which appear, from independent 'evidence, to have been made accurately enough, have become 'almost worthless on that account. And a single beacon altered 'tends to throw discredit on the best of work, since, without 'further evidence, it becomes a matter of doubt whether a discre-'pancy may be due to the altered position of a beacon or to in-'accuracy in the previous work. On the other hand, the uniform 'agreement of the positions of these beacons, such as masonry 'beacons which obviously cannot have been tampered with, would 'always establish a strong presumption of the accuracy of the 'recorded positions of other original points.

'Owing to the difficulty that was experienced in getting a 'suitable stone-mason for the work, I was led to adopt beacons 'made of a block of concrete cast *in situ*, normally 2 feet below 'and 2 feet 6 in. above the ground, and 20 in. square at the 'ground level, tapering to 15 in. square at the top, a hole 2 in. 'square being left down the centre for fixing survey signals and to 'serve as a centre mark. The cost is reduced, by dispensing with 'a stone mason at comparatively high wages, and with the 'transport of stone (suitable kinds for breaking up into concrete 'being found nearly everywhere), from about £3 to under '£1-7s.0d. including materials, labour, and transport, and it will be 'probably still less where the beacons required to be built are not 'far apart."

In the Eastern Circle, Mr. J. S. Lister is the Conservator, and his head-quarters are at King William's Town. His Report is interesting, though there is little which requires special note in these pages. And the same is the case with the Report of the Conservator, Mr. Henkel, on the Transkei Circle, one of the most noticeable points in which is the system of giving Free Permits to Kafirs: on this Mr. Henkel writes as follows:—

"As pointed out in the Annual Report for 1891, a very large 'and trained staff is required to watch Natives cutting Wattles, 'poles and kraal bushes under "Free Permits" which have to be 'granted by the Resident Magistrates. Applicants for a Free 'Permit, as a rule, do not proceed to the forests themselves, but 'send boys, often their own sons or relatives, to cut for them. I 'have personally observed that young and valuable timber trees were girdled and partially cut through out of pure mischief by 'these native boys. Young timber so injured blows down during 'strong winds and does a great deal of damage to the forest.

"The Natives are now well acquainted with the different 'species of timber trees, the reserved trees are shown to them by 'the Foresters and Native Forest Guards.

"The heathen Kafir, when he can afford it, marries two or 'three wives, consequently the Bantu race is fast increasing. It 'has been calculated that in 16 years time their numbers will 'have doubled themselves: therefore, if the present system of 'building huts, kraals, &c., &c., is continued, large Wattle plantations will have to be established to supply their requirements, as 'the supply is almost exhausted.

"The civilizing influences of Missionary and Government 'brought upon the native races, have been hitherto of very little 'avail, but if the original plan of Government, of separating locations by belts of farms had been carried out and these sold to 'industrious European farmers, the force of example would have 'been the means of rousing the Natives to energy and thrift."

The value of the Free Permits thus granted by Resident Magistrates during the year, amounted to £15,295 while the collected revenue was only £1,956. The complaint is the same that has been made in Ceylon, and all we can say is that the Bombay Forest Officers have, at any rate, the advantage that the privileges in their forests are fixed and recorded so that they know what to expect; in Transkei, the case seems to be that as fast as the Forest Officers work to raise trees, the magistrate issues permits to cut them down. We suppose that the day for regulation and settlement will come sometime, meantime we congratulate the Cape Forest Officers on their energy and are glad to note a distinct record in this Report of a tendency towards more regular conservancy and more scientific management.

VI.—EXTRACTS, NOTES AND QUERIES.

In the Amador Second-growth Forests.

Amador county is one of the most neglected portions of the Central Sierra region of California. It lies between Calaveras and El Dorado, and extends from the edge of the valley eastward to the summit. In outline it is something like the Isthmus of Tehuantepec, irregular, and narrow in the middle. It is large, thinly populated and very mountainous. Historically it has been one of the most active of the old mining counties. Large quartz mines are in operation there, but the placer mines were long ago exhausted.

A branch railroad extends east from Galt, in Sacramento County, to Lone, in Amador. Stages run to the towns and villages as far as Volcano, about twenty-five miles further east, and 3,000 feet above the sea. At the present time (May 1st), and for six or eight weeks longer, Volcano will be the end of the stage route; in summer the stages go "to the snow-line." For the trip to Volcano the last of April is probably the pleasantest part of the year, for the roads are not dusty and the weather is delightful, though the nights are still cold—about thirty-degrees at times—so that one needs a heavy overcoat if travelling late.

When Amador was first settled, Yellow pines of great size stood in forests down to the 1,200 feet level, and Sugar pines began to mingle with them at about 1,500 feet. A little higher came the *Libocedrus*, and then the Douglas spruce while the pines continued. The Oaks were also very large and fine. All these earlier trees, except a few Oaks, have been cut down, and the face of the country, except in small scattered clearings, is covered with second growth and coarse bushes of no economic value. All the lumber used by the people comes from forty miles further east. Even there the large trees are nearly gone, except in almost inaccessible gulches. The selling price of rough, averages $ 20·00 per thousand in Jackson, the county-seat, though it is hauled forty miles over steep roads. None of the mills are making much money. Spruce, deodar and pine lumber are rated at about the same price. The mines use a great deal of heavy timber in shafts, drifts, tunnels and buildings. Teamsters are seen bringing down logs sixteen feet long and three feet in diameter to the lumber-yards of the leading mine companies; such a log is worth fifteen or sixteen dollars and hundreds of them may be seen piled up near the mine-shafts.

In some parts of the country there are gulches that are fairly dotted with old tunnels, shafts and dumps. Everywhere there is evidence of immense energies spent upon mines now worked out or abandoned and millions of feet of lumber have been buried underground. The undeveloped resources of the region are very great, and new ledges are being opened every year. It is easy to see where the famous forests of Central Amador have gone, and now the forests of the upper ridges are being used. Although the county is one of the best portions of the Sierras, its available timber-supply has steadily decreased since its settlement. The view of some writers that the timber-supply of the country is increasing seems most ridiculous here.

A great deal of the lumber cut has been taken from Government land. Everybody admits this, but seems to think it hardly right to prevent it. Every saw-mill owns land, of course, but somehow all the accessible Government sections are in second-growth, exactly the same as the sections that have been entered. That tells the story to an unbiassed observer.

The second growth is very beautiful, and even over the larger part of many square miles it is in exactly the condition now that an intelligent forester would like to have it, if he were to take charge of the district. Twenty thousand acres of second-growth Pine (*P. ponderosa* and *P. Lambertiana*) are to be seen from the County road between Clinton and Volcano (about ten miles), that only need thinning and protecting to become in due time as valuable as any forest on the Sierras. There is a great deal more that would repay care, and many thousand acres which are valueless except for timber, but which could be planted. The settlers start fires to destroy brush and under-growth, and improve pasture, and every few years these fires run over large territories, destroying the second-growth pines. There are not many sheep and cattle in the region now, but they come up from the valleys later. The second-growth pines average five or six inches in diameter, with many small trees struggling in the dense under-growth of the more treeless slopes of chapparal. (*Garden and Forest.*)

The Chicago Exhibition.

A COMMUNICATION FROM AMERICA TO THE FORST AND JAGD ZEITUNG.

The following notes are sent from a fellow forester in America in the hope that some information regarding the Forestery Building and it contents at the Chicago Exhibition may be of interest as containing details and impressions which have not been given elsewhere in the numerous descriptions already printed.

The term "Forestry Exhibition" is, to begin with, misleading; an "Exhibition of woods" will be a more appropriate term, for this reason that here is no question of implements used in sylviculture, of devices used in practical forestry, of working plans, and of maps, etc: but only of various timbers and of enemies of forest growth. The only exception is in the case of the exhibit of the Prussian Department of agriculture forwarded in charge of a Conservator who was to take opportunity to study the felling and carriage of timber in the natural forests California. But this, the sole technical and sylvicultural exhibit which the Chicago Exhibition possesses, was at the time of our visit still reposing in its travelling case.

The "Forestry Building" stands on the shore of Lake Michigan and is flanked on one side by the exhibit of Leather and in the other by the building devoted to Ethnology. It is a handsome erection, covered in the outside with rough tree trunks, with a high gabled roof, that contrasts well, with its weathered brown color, with most of the other Exhibition buildings; for these buildings are all white; the color laid in with brush or to save time with a hose, some inventive American having discovered that it saved time to apply color wash in this comprehensive way.

The interior of the Forestry building is small when compared with the immense halls so frequent in other parts of the Exhibition; but would be considered large in any other circumstances; a fact self explantory when it is remembered that space is required for the arrangement of the Exhibits of those numerous States of North, Central and South America that still possess Forests. The number and beauty of the woods exhibited is astonishing; these are chiefly in the form of blocks 3 to 5 feet long cut from the butt end of the tree and sawn lengthways down the centre; but planks are also frequently exhibited. As an example of the number of exhibits, the Argentine Republic alone shows 400 different kinds of wood. These American woods are remarkable for their handsome grain and color, and this makes them valuable for cabinet work of all kinds, without considering their good qualities which, as in carriage building, etc, procure for them a good market.

There is also an exhibition of pests and of forest insects; some fine illustrations of felling and carriage in natural forests; a few manufactures in wood and bark, and some magnificent wood carvings from New York. Such are the main features of the Forestry Exhibition, showing clearly the money-making characterastics of the American who only interests himself in such wares as can be readily turned into coin, and not in those which serve to maintain the value of the forest to future generations; to whom, indeed, the idea of the future is incomprehensible.

What we did see of the American forests was not exactly edifying. On the way to Chicago all along the Pennsylvania Line

were disforested areas still covered with rotting wood, but the best idea of forest destruction was to be obtained on the North Pacific Railway from St. Paul to Livingstone, where for 1600 Kilometres a treeless prairie stretches, whilst in Yellowstone Park where nature is at its best in grandeur and wildness one may frequently observe large bare areas, evidently originally due to forest fires, and unused, for they have now become desolate wastes. Fires in this National Park are caused by tourists, who during the summer months camp out in this area of 5,600 square miles ; provided with a waggon they wander in the forests camping where they please and supporting themselves by hunting and fishing, for game in the the shape of bears, wolves, wapiti and elk is still common in this tract. Tree vegetation is here not very luxuriant as the elevation is from 7000 to 8000 feet. It is stated as a fact that in the Yellowstone lake which lies at this elevation we can catch trout and at once cook them in the hot springs which are frequent on the shores of this water.

The impression left on us by the condition of forests in America is that this country cannot much longer dispense with systematic forestry such as is carried on in Europe, and that this systematic forestry must be independent of party politics, for the continuity of forest management cannot be guaranteed if the constant change of officials which affects all branches of the administration and originates the constant cry for more money is permitted also to affect the Forest Department of the future.

London Trees.

Before parting with the memorable summertide of 1893, it may not be profitless to observe its effect upon trees, so essential to the beauty and health of the Metropolis. They afford the one redeeming feature to an otherwise ugly town.

Some years ago (writes Sir Herbert Maxwell, M. P., to the *Times*) I brought upon myself a good deal of adverse criticism by quoting Leigh Hunt's saying that it was hard to find a single street in London from some part of which a tree was not visible. I only know of two—*viz.*, Savile Row and a street parallel with Berners Street.

London trees have two adverse influences to resist—coal smoke and heat reflected from miles of brick and stonework. The effect of the latter is so clearly marked upon several species at the present moment that the lesson ought not to be neglected by the Office of Works and by those in charge of squares and gardens, for although the heat has been greatly excessive this year, trees in a town are always exposed to greater summer heat than those in the country.

The trees which have suffered most are one native species—the wych elm—and two exotic species—the horse chestnut and the lime. The condition in which these are now and have been for some weeks past ought to convince us of their unsuitability for urban planting. Many of them are entirely leafless; others retain but a sore remnant of summer clothing.

The plane, for which we shall soon have to borrow the title of a humbler green thing and call it "London pride," has stood the trial fairly well, for, although it has shed half its leaves, the other half remain and are still fresh and verdant. By a popular mistake (pointed out some years ago in the *Garden* newspaper) the tree is called the Western or Occidental plane. It is not so, but an Eastern European and Asiatic species (*Platanus acerifolius*), and may be distinguished from the American *P. occidentalis* by bearing two or more seed vessels on the fruit stalk instead of one.

Aspens and poplars have suffered not at all, and should be more largely planted in London. By a peculiar formation of the leaf stalk, which is flattened midway, they are specially provided with a mechanical means of protection against heat. The leaves hang vertically and possess glands on both surfaces, whereas oak, beech, chestnut, &c., have glands only on the under surface.

But the tree to which Sir Herbert Maxwell calls special attention as invaluable for towns is what is commonly called the acacia. It is not an acacia at all, being of the pea-flower tribe; its scientific name is *Robinia Pseudo-Acacia*. Let any one compare the fine specimen standing at the corner of Lord Sefton's house in Belgrave Square, or a group of young ones in the Green Park, near Wellington Arch, with trees of other kinds around, and he cannot fail to recognise in this species one which, for beauty of form or freshness of verdure, cannot be excelled for planting in towns.

Notes on Tree-seeding.

Mr. A. W. Lushington, District Forest Officer of Kistna writes that this year the Tamarind trees in his District are fruiting abundantly, the crop of last year having been very bad. The *babúl sissu* and *Hardwickia* are also seeding well.

Mr. G G. Minniken, Deputy Conservator in Bashahr, Punjab, writes that "there has not been in this Division for many years 'such a scarcity of deodar seed, while last year the crop was 'unusually plentiful."

The Forestry of the National Reservations in America.

A leading article in 'Garden and Forest' of Aug. 23rd, recommends a staff of military men trained at West Point as being preferable to civilians for the charge of the great national Reserves. The idea is not a bad one, but we do not agree that a technical forest education is unnecessary, and think that if the idea ever were caried out, it would be well to supplement the military teaching by at least two years of technical Forestry.

The Madras Forest Code.

We see in the 'Madras Mail' that Mr. R. C. C. Carr of the Civil Service, who has acted, we believe, as Private Secretary to the Governor, has been deputed on special duty to revise the Forest Code of the Presidency, and we are surprised that matters in Madras have reached such a point as this. It seems to be high time for the Secretary of State to interfere again and insist on setting matters right once more. Mr. Carr, doubtless, in an excellent officer, but the idea of having a Civilian posted, probably, like the Board of Revenue clerk, at the expense of the Forest Department, to do work which ought to be done by the Conservators, is a serious thing for those who wish well to the Department, and consider its officers quite capable of editing their own Codes.

IIV.-TIMBER AND PRODUCE TRADE.

Churchill and Sim's Circular.

December 4th, 1893.

EAST INDIAN TEAK.—The deliveries for the first eleven months of this year have been 11,736 loads against a total of 9,401 loads for the same months of 1892, and 13,341 loads for those of 1891. The deliveries in November have been small : 400 loads only, against 967 loads and 1,020 loads in the two previous years. No improvement has taken place in prices, but the tone of the market is more sanguine than it has been of late. Nothing has yet transpired as to the considerable Admiralty requirements tendered for at the end of the month.

ROSEWOOD.—Remains dull of sale, although stocks are not at all heavy.

SATINWOOD.—There is a moderate demand for figury and large *logs*, but very little enquiry for small, plain, wood ; *planks* and *boards*, are never asked for.

EBONY.—Is more enquired for, but prices have not yet advanced ; there is no stock in first hands.

PRICE CURRENT.

Indian Teak	per load	£9-10s.	to	£15-10s.
Satinwood	„ ton	£5	to	£12
Rosewood	„ „	£5	to	£9
Ebony	„ „	£5	to	£7

MARKET RATES OF PRODUCTS.

(*Tropical Agriculturist, December 1893.*)

Cardamoms,	per lb.	2s.	to	2s.6d.
Croton seeds	per cwt.	20s.	to	27s.6d.
Cutch	„	20s.	to	23s.
Gum Arabic, Madras	„	15s.	to	45s.
Gum Kino	„	£15	to	£18
India Rubber, Assam	per lb.	107d.	to	2s.3d.
„ Burma	„	7d.	to	1s.1¼d.
Myrabolams, Bombay	per cwt	9s.6d.	to	11s.3d.
„	„	5s.	to	6s.9s.
„ , Godavari	„	7s.3d.	to	7s.9d.
Nux Vomica, good	„	6s.	to	8s.
Orchella, Ceylon	„	22s.	to	28s.
Redwood	per ton	£3.	to	£3-10s.
Sandalwood, logs	„	£35	to	£55
„ chips	„	£9	to	£30

Cawnpore Price Current.

December 28th, 1893.

	Per Maund.						
	R.	A.	P.		R.	A.	P.
Aonla fruits—dried	0	12	0	to	0	12	6
,, leaves dried and bruised ...	1	12	0	to	2	0	0
Babul bark	0	7	0	to	0	8	0
Bahera	1	10	0	to	1	12	0
Stick Lac	20	0	0	to	22	0	0
Myrabolams	3	8	0	to	3	12	0
Moonj grass	0	12	0	to	1	0	0
Babul Gum	12	0	0	to	13	0	0
Mixed Gum	9	0	0	to	10	0	0

IX.—EXTRACTS FROM OFFICIAL GAZETTES.

1.—Gazette of India.

23rd November, 1893—No. 1181-F.—In consequence of the return of Mr. A. E Wild, Conservator of Forests 3rd grade, from the furlough granted him in the Notification of this Department, No. 1326-F., dated 28th October, 1892, and of the departure of Mr. J. S. Gamble, Conservator, 1st grade, School Circle, North-Western Provinces and Oudh, and Director of the Imperial Forest School at Dehra Dun, on the privilege leave granted him in Notification No. 1111-F., dated the 19th ultimo:—

(i) Mr. C. Bagshawe, Conservator, 2nd grade, Berar, is appointed to officiate in the 1st grade of Conservators.

(ii) Mr. Wild is appointed to the charge of the School Circle in the North-Western Provinces and Oudh, and of the Imperial Forest School, and to officiate in the 2nd grade of Conservators.

} With effect from the 4th November, 1893, and until further orders.

20th December, 1893—No. 1281 F.—The following arrangements are ordered during the absence of Mr. B. Ribbentrop, C. I. E., Inspector-General of Forests, on the privilege leave granted him in the Notification of this Department, No. 3847—306, dated the 31st October last:—

Mr. H. C. Hill, Conservator, 1st grade, Central Circle, North-Western Provinces and Oudh—to officiate as Inspector-General of Forests.

Mr. A. E. Wild, Conservator, 3rd (officiating 2nd) grade, School Circle, North-Western Provinces and Oudh, and Director of the Imperial Forest School, Dehra Dun—to hold charge of the Central Circle, *vice* Mr. Hill, when relieved of the charge of the School Circle and the Forest School by Mr. J. S. Gamble, Conservator, 1st grade, on the return of the latter from the privilege leave granted him in Notification No. 1111 F., dated the 19th October, last.

Colonel J. E. Campbell, I. S. C., Deputy Conservator, 1st grade, North-Western Provinces and Oudh—to hold charge of the current duties of the office of Conservator of the Central Circle, from the date on which Mr. Hill receives charge of the Inspector-Generalship from Mr. Ribbentrop to the date on which Mr. Wild takes charge of the Central Circle.

2.—Madras Gazette.

8th December, 1893—Mr. C. J. Wouterse, Extra Assistant Conservator of Forests, from the South Arcot District to the Trichinopoly District.

3.—Bombay Gazette.

30*th November*, 1893—Messrs. E. G. Oliver and H. W. Keys, Deputy Conservators of Forests, Fourth Grade, respectively delivered over and received charge of the Divisional Forest Office, West Khándesh, on the 16th instant, before noon.

Mr. J. H. Clabby, Extra Assistant Conservator of Forests, Third Grade, delivered over, and Mr. E. G. Oliver, Deputy Conservator of Forests, Fourth Grade, received charge of the Divisional Forest Office, Sholápur, on the forenoon of the 21st instant.

1*st December*, 1893—Mr. G. R. Duxbury, Assistant Conservator of Forests, Second Grade, newly appointed by Her Majesty's Secretary of State to the Indian Forest Service, reported himself for duty in the Northern Circle on the 30th November, 1893, before noon.

1*st December*, 1893—No. 8844.—Mr. Váman Rámchandra Gaundi, Extra Assistant Conservator of Forests, First Grade, and Sub-Divisional Forest Officer, Násik, is allowed furlough for three months from 1st December, 1893, or from such subsequent date as he may avail himself of it.

7*th December*, 1893—Mr. J. H. Clabby, Extra Assistant Conservator of Forests, Third Grade, reported himself to the Divisional Forest Officer of Poona on the 22nd November last, before office hours, and was attached to that Division for duty from that date and time.

13*th December*, 1893—No. 9164.—Mr. B. J. Haselden, Assistant Conservator of Forests, Second Grade, is promoted to the First Grade from 6th October, 1893.

16*th December* 1893—Mr. W. R. Woodrow, Deputy Conservator of Forests, resumed charge of the Dhárwár Forest Division from Mr. W. A. Talbot, Divisional Forest Officer Northern Division, Kánara, on the 8th December, 1893, before office hours.

4.—Bengal Gazette.

5*th December*, 1893—No. 4999—Mr. E. G. Chester, Deputy Conservator of Forests, in charge of the Darjeeling Forest Division, is appointed to have charge of the Singbhum Forest Division.

Mr. H. H. Davis, Deputy Conservator of Forests, in charge of the Singbhum Forest Division, is appointed to have charge of the Darjeeling Forest Division, *vice* Mr. Chester.

11*th December*, 1893.—No. 5009—Consequent on the return to duty of Mr. W. M. Green, Deputy Conservator of Forests, from furlough, the following reversions are ordered in the Upper Controlling Staff of the Bengal Forest Department, with effect from the 1st November, 1893 :—

Mr. R. L. Heinig, Officiating Deputy Conservator of Forests, third grade, to revert to the fourth grade of Deputy Conservators.

Mr. W. H. Lovegrove, Officiating Deputy Conservator of Forests, fourth grade, to revert to the first grade of Assistant Conservators.

Mr. C. C. Hatt, Officiating Deputy Conservator of Forests, fourth grade, to revert to the first grade of Assistant Conservators (provisional).

12*th December*, 1893—No. 5096—Mr. W. H. Lovegrove, Assistant Conservator of Forests, on return from the privilege leave granted to him under the orders contained in Notification No. 4348 For., dated the 10th October, 1893, is posted to the Singhbhum Forest Division.

19*th December*, 1893—No. 5274A.—The report of the Central Examination Committee having been received, the result of the Half-yearly Departmental Examination of Assistant Magistrates and others, held in November 1893, is published for general information :—

Mr. A. H. Mee, Extra Assistant Conservator of Forests, has passed in Forest Procedure and Accounts.

5.—N. W. P. AND OUDH GAZETTEE.

6*th December*, 1893—No. 971—The Hon'ble the Lieutenant-Governor and Chief Commissioner is pleased to declare the undermentioned gentleman to have passed the Departmental Examination for Junior Officers, held on the 23rd October, 1893, and following days, in the subjects specified below :—

Vernacular.

By Higher Standard.

Mr. F. A. Leete.

20*th December*, 1893—No. 3885—The undermentioned officer has been granted by Her Majesty's Secretary of State for India extension of leave :—

Name.	Service.	Appointment	Period and nature of leave.
Mr. L. Mercer ...	Forest ...	Deputy Conservator of Forests.	Special leave commuted to leave on medical certificate for 10 months.

This cancels Notification No. 3568, dated 22nd November, 1893.

6—PUNJAB GAZETTE.

8*th December*, 1893.—No. 116.—The words ' ditto' ' ditto ' against the name of Mr. Coventry in the last column of the statement in Punjab Notifications Nos. 379 and 380 of 20th August 1892 should be omitted.

No. 620.—The following statement of the amalgamated list of Forest Officers for the Punjab, Central Provinces, Coorg and Berar, as it stood on 12th August 1892, should be substituted for that given in Punjab Notification No. 295 of 3rd May 1893 :—

Sanctioned scale.	Name of Officers.	Position of Officers.
Deputy Conservators of Forests, 1st Grade, (4).	1. J. C. McDonell	On deputation
	2. F. B. Dickinson	Officiating Conservator of Forests.
	3. C. F. Elliott	1. Deputy Conservator of Forests, 1st Grade.
	4. J. McKee	Officiating Conservator of Forests.
Deputy Conservators of Forests 2nd Grade, (5).	5. G. G. Minniken	2. Provisional Deputy Conservator of Forests, 1st Grade.
	6. W. P. Thomas	3. Officiating Deputy Conservator of Forests, 1st Grade.
	7. G. H. Foster	4. Ditto ditto.
	8. E. Forrest	5. Deputy Conservator of Forests
	9. L. A. W. Rind	6. Ditto ditto.
Deputy Conservators of Forests, 3rd Grade, (5).	10. F. A. Lemarchand	7. Provisional Deputy Conservator of Forests, 2nd Grade.
	11. G. F. Prevost	On special leave.
	12. J. Ballantine	On deputation.
	13. E. Dobbs	8. Officiating Deputy Conservator of Forests, 2nd Grade.
	14. W. King ...	9. Ditto ditto.
Deputy Conservators of Forests, 4th Grade, (8).	15. A. M. Reuther	10. Provisional Deputy Conservator of Forests, 3rd Grade.
	16. J. H. Lace ...	11. Ditto ditto.
	17. L. G. Smith ...	12. Officiating Deputy Conservator of Forests, 3rd Grade.
	18. F. S. Barker	On furlough.
	19. H. Moore ...	Ditto. ditto.
	20. G. F. Taylor	13. Officiating Deputy Conservator of Forests, 3rd Grade.
	21. A. L. McIntire	14. Ditto ditto.
	22. H. A. Hoghton	15. Deputy Conservator of Forests, 4th Grade.
Assistant Conservators of Forests, 1st Grade, (8).	23. F. C. Hicks	16. Provisional Deputy Conservator of Forests. 4th Grade.
	24. R. J. P. Pinder	17. Ditto ditto.
	25. A. E. Lowrie	18. Officiating Deputy Conservator of Forests, 4th Grade.
	26. A. A. Watson	On sick leave.
	27. G. S. Hart ..	19 Officiating Deputy Conservator of Forests, 4th Grade.
	28. C. P. Fisher	20. Ditto ditto.
	29. A. V. Monro	On privilege leave.
	30. A. W. Blunt	21. Officiating Deputy Conservator of Forests, 4th Grade.
Assistant Conservators of Forests, 2nd Grade, (7).	31. P. H. Clutterbuck	22. Provisional Assistant Conservator of Forests, 1st Grade, and Officiating Deputy Conservator of Forests, 4th Grade.
	32. A. M. F. Cacoia	23. Provisional Assistant Conservator of Forests, 1st Grade.
	33. E. M. Coventry	24. Assistant Conservator of Forests, 2nd Grade.
	34. V. S. Menzies	25. Ditto ditto.
	35. H. S. K. Edie	26. Ditto ditto.
	36. C. Somers Smith	27. Ditto ditto.
	37. Vacant.	

No. 621.—To Punjab Government Notification No. 296 of 3rd May 1893 :—

Add :—

Mr. A. M. F. Caccia, Provisional Assistant Conservator of Forests, 1st Grade, to officiate as Deputy Conservator of Forests, 4th Grade, with effect from 16th August 1892.

No. 622.—To Punjab Government Notification No. 298 of 3rd May 1893.—

Add—

Mr. A. M. F. Caccia, Officiating Deputy Conservator of Forests, 4th Grade, to Provisional Assistant Conservator of Forests, 1st Grade, with effect from 19th October 1892.

No. 623.— Mr. P. H. Clutterbuck, Provisional Assistant Conservator of Forests, 1st Grade, and Officiating Deputy Conservator of Forests, 4th Grade, went on three months privilege leave on 6th October 1892.

No. 624.—Mr. E. M. Coventry, Assistant Conservator of Forests, 2nd Grade, was deputed to Ajmir from 1st January 1893 to 20th April 1893.

No. 625.—The following promotions to fill existing vacancies will have effect from 5th January 1893 :—

Messrs. Menzies and Edie, Assistant Conservators of Forests, 2nd Grade, to officiate as Assistant Conservators of Forests, 1st Grade.

No. 626.—Mr. V. S. Menzies, Officiating Assistant Conservator of Forests, 1st Grade, went on sick leave on 6th January 1893.

No. 627.—To Punjab Government Notification No. 300 of 3rd May 1893 .—

Add—

Mr. A. M. F. Caccia, Provisional Assistant Conservator of Forests, 1st Grade, to officiate as Deputy Conservator of Forests, 4th Grade, with effect from 10th January 1893.

No. 628.—Consequent on the return of Mr. P. H. Clutterbuck, Provisional Assistant Conservator of Forests, 1st Grade, and Officiating Deputy Conservator of Forests, 4th Grade, from three months' privilege leave, the following reversion shall have effect from the 12th January 1893 :—

Mr. A. M. F. Caccia, Officiating Deputy Conservator of Forests 4th Grade, to Provisional Assistant Conservator of Forests, 1st Grade.

No. 626.—To Punjab Government Notification No. 303 of 3rd May 1893 :—

Add—

Mr. H. S. K. Edie, Officiating Assistant Conservator of Forests, 1st Grade, to officiate as Deputy Conservator of Forests, 4th Grade, with effect from 27th February 1893.

No. 630.—Mr. V. S. Menzies, Assistant Conservator of Forests, 2nd Grade, on sick leave, died on 21st March 1893.

No. 631.—Mr. F. B. Dickinson, Officiating Conservator of Forests, proceeded on one year's furlough from 31st March, 1893.

No. 632.—Mr. A. A. Watson, Assistant Conservator of Forests, 1st Grade, on sick leave, resigned his appointment with effect from 6th April 1893.

No. 633.—Mr. E. M. Coventry, Assistant Conservator of Forests, 2nd Grade, proceeded on examination leave for three months, with effect from 21st April 1893.

9th December 1893.—No. 639.—Mr. J. Ballantine, Deputy Conservator of Forests, 2nd Grade, on deputation, went on two years' furlough, with effect from 10th June 1893.

Mr. Ballantine still remains on deputation in His Highness the Nizam's Dominions.

No. 640.—Mr. E. M. Coventry, Assistant Conservator of Forests, 2nd Grade, returned from three months' examination leave on the 22nd July 1893.

No. 641.—Consequent on the departure of Mr. A. W. Blunt, Officiating Deputy Conservator of Forests, 4th Grade, on three months' privilege leave, the following promotions will have effect from 9th August 1893 :—

Mr A. M. F. Caccia, Provisional Assistant Conservator of Forests, 1st Grade, to officiate as Deputy Conservator of Forests, 4th Grade.

No. 642 —Mr. A. M. F. Caccia, Provisional Assistant Conservator of Forests, 1st Grade, and Officiating Deputy Conservator of Forests, 4th Grade, went on three months' privilege leave from 14th September 1893.

No. 643.—Consequent on the departure on privilege leave of Mr. L. G Smith, Provisional Deputy Conservator of Forests, 3rd Grade, and Officiating Deputy Conservator of Forests, 2nd Grade, the following promotions will have effect from 26th September 1893 :—

Mr. A. L. McIntire, Officiating Deputy Conservator of Forests, 3rd Grade, to officiate as Officiating Deputy Conservator of Forests, 2nd Grade.

Mr. A E. Lowrie, Officiating Deputy Conservator of Forests, 4th Grade, to officiate as Officiating Deputy Conservator of Forests, 3rd Grade.

No. 644.—Consequent on the return from privilege leave of Mr. G. F. Taylor, Officiating Deputy Conservator of Forests, 3rd Grade, the following changes will have effect from 4th October, 1893.

Mr. G. F. Taylor, Officiating Deputy Conservator of Forests, 3rd Grade, to officiate as Deputy Conservator of Forests, 2nd Grade.

Mr. A L McIntire, Officiating Deputy Conservator of Forests, 2nd Grade, to officiate as Deputy Conservator of Forests, 3rd Grade.

Mr. A. E. Lowrie, Officiating Deputy Conservator of Forests, 3rd Grade, to officiate as Deputy Conservator of Forests, 4th Grade.

No. 645.—Consequent on the return to duty from sick leave of Dr Dobbs, Deputy Conservator of Forests, 3rd Grade, the following changes will have effect from 25th October, 1893 :—

Dr. Dobbs, Deputy Conservator of Forests, 3rd Grade, to officiate as Deputy Conservator of Forests, 2nd Grade.

Mr. G. F. Taylor, Officiating Deputy Conservator of Forests, 2nd Grade, to officiate as Deputy Conservator of Forests, 3rd Grade.

Mr R. J. P. Pinder, Provisional Deputy Conservator of Forests, 4th Grade, and Officiating Deputy Conservator of Forests, 3rd Grade, to revert to Provisional Deputy Conservator of Forests, 4th Grade.

No. 646 —Mr. A. W. Blunt, Officiating Deputy Conservator of Forests, 4th Grade, returned on 10th November 1893 from three months' privilege leave.

No. 647.—Consequent on the departure on privilege leave for 14 days of Mr. Hoghton, Officiating Deputy Conservator of Forests, 3rd Grade, the following promotion will have effect from 12th November 1893 :—

Mr. R. J. P. Pinder, Provisional Deputy Conservator of Forests, 4th Grade, to officiate as Deputy Conservator of Forests, 3rd Grade.

No. 648.—Consequent on the return of Mr. H A. Hoghton, Deputy Conservator of Forests, 4th Grade, and Officiating Deputy Conservator of Forests, 3rd Grade, from privilege leave, the following reversions shall have effect from 27th November 1893 :—

Mr. R. J. P. Pinder, Provisional Deputy Conservator of Forests, 4th Grade, and Officiating Deputy Conservator of Forests, 3rd Grade, to Provisonal Deputy Conservator of Forests, 4th Grade.

Mr. H. S K. Edie, Officiating Deputy Conservator of Forests, 4th Grade to Officiating Assistant Conservator of Forests, 1st Grade.

12*th December*, 1893.—No. 652.—On return from the privilege leave of absence granted to him in *Punjab Government Gazette* Notification No. 513, dated the 9th of October 1893, Mr. G. S. Hart, Officiating Deputy Conservator of Forests, resumed charge of the Simla Hill Tracts Division on the forenoon of the 13th November 1893, relieving Mr. G. G. Munniken, Deputy Conservator of Forests.

16*th December* 1893. No. 665.—In Punjab Notification No. 381 of 20th August 1892, omit the words "Mr. L. G. Smith, Officiating Deputy Conservator of Forests, 3rd Grade, to be Deputy Conservator of Forests, 3rd Grade, substantive provisional."

No. 666.—To Punjab Government Notification No. 302 of 3rd May 1893 add—

Mr. A. M. F. Caccia, Provisional Assistant Conservator of Forests, 1st Grade, to officiate as Deputy Conservator of Forests, 4th Grade, with effect from 26th February 1893.

No. 667.—Consequent on the death of Mr. G. H. Foster, Officiating Deputy Conservator of Forests, 1st Grade, the following promotions will have effect from 29th April, 1893 :—

Mr. L A. W. Rind, Deputy Conservator of Forests, 2nd Grade, to officiate as Deputy Conservator of Forests 1st Grade ;

Mr. F. O. Lemarchand, Provisional Deputy Conservator of Forests, 2nd Grade, to be Deputy Conservator of Forests, 2nd Grade ;

Mr. G. F. Prevost, Officiating Deputy Conservator of Forests, 2nd Grade, to be Provisional Deputy Conservator of Forests, 2nd Grade ;

Mr. A. M. Reuther, Provisional Deputy Conservator of Forests, 3rd Grade (on furlough), to be Deputy Conservator of Forests, 2nd Grade ;

Mr. L. G. Smith, Officiating Deputy Conservator of Forests, 2nd Grade, to be Provisional Deputy Conservator of Forests, 3rd Grade, and to continue to officiate as Deputy Conservator of Forests, 2nd Grade;

Mr. G. F. Taylor, Officiating Deputy Conservator of Forests, 3rd Grade, to officiate as Deputy Conservator of Forests, 2nd Grade ;

Mr. A. F. Lowrie, Officiating Deputy Conservator of Forests, 4th Grade, to officiate as Deputy Conservator of Forests, 3rd Grade.

No. 668.—Consequent on Mr. Somers Smith's promotion to the 1st Grade of Assistant Conservators in accordance with Punjab Government Notification No. 605 of 28th November 1893, the following list is published showing the names and positions of officers on the 2nd of May, 1893 :—

Serial No.	Names.	Position.
Deputy Conservators of Forests, 1st Grade (4).	1 J. C McDonell ...	On deputation.
	2 F. B. Dickinson ...	On furlough.
	3 C. F. Elliott ...	Officia i.ng Conservator of Forests
	4 J. McKee ...	Ditto ditto.
Deputy Conservators of Forests, 2nd Grade (5).	5 G. G. Minniken ...	1. Provisional Deputy Conservator of Forests, 1st Grade.
	6 W. P. Thomas ...	2. Officiating Deputy Conservator of Forests, 1st Grade.
	7 E. Forrest ...	3. Ditto ditto.
	8 L. A. W. Rind ...	4. Ditto ditto.
	9 F. O. Lemarchand.	5. Deputy Conservator of Forests, 2nd Grade.
Deputy Conservators of Forests, 3rd Grade (5).	10 G. F. Prevost ...	6. Provisional Deputy Conservator of Forests, 2nd Grade.
	11 J. Ballantine ...	On deputation.
	12 E. Dobbs ...	On sick leave.
	13 W. King ...	7. Officiating Deputy Conservator of Forests, 2nd Grade.
	14 A. M. Reuther ...	On furlough.
Deputy Conservators of Forests, 4th Grade (8).	15 J. H. Lace ...	Ditto.
	16 L. G. Smith ...	8. Provisional Deputy Conservator of Forests, 3rd Grade, and Officiating Deputy Conservator of Forests, 2nd Grade.
	17 F. S. Barker ...	On sick leave.
	18 H. Moore ...	On furlough.
	19 G. F. Taylor ...	9. Officiating Deputy Conservator of Forests, 2nd Grade.
	20 A. L. McIntire ...	10. Officiating Deputy Conservator of Forests, 3rd Grade.
	21 H. A. Hoghton ...	11. Ditto ditto.
	22 Vacant ...	
Assistant Conservators of Forests, 1st Grade (8).	23 F. C. Hicks ...	12. Provisional Deputy Conservator of Forests 4th Grade, Officiating Deputy Conservator of Forests, 3rd grade.
	24 R. J. P. Pinder ...	13. Provisional Deputy Conservator, 4th Grade, Officiating Deputy Conservator of Forests, 3rd Grade.
	25 A. E. Lowrie ...	14. Officiating Deputy Conservator of Forests, 3rd Grade.
	26 C. Somers Smith...	15. Officiating Deputy Conservator of Forests, 4th, Grade.
	27 G. S. Hart ...	16. Ditto ditto.
	28 C. P. Fisher ...	17. Ditto ditto.
	29 A. V. Monro ...	18. Ditto ditto.
	30 A. W. Blunt ...	19. Ditto ditto.

Serial No.	Names.	Position.
Assistant Conservators of Forests, 2nd Grade (7).	31 P. H. Clutterbuck	20. Provisional Assistant Conservator of Forests, 1st Grade, Officiating Deputy Conservator of Forests, 4th Grade.
	32 A. M. F. Caccia ...	21. Ditto ditto.
	33 E. M. Coventry ...	On examination leave.
	34 H. S. K. Edie ...	22. Officiating Deputy Conservator of Forests, 4th Grade.
	35 Vacant.	
	36 Ditto.	
	37 Ditto.	

No. 669. – Consequent on the reversion of Mr. C. F. Elliott, Officiating Conservator, to his substantive appointment, the following reversions shall have effect from the 26th May 1893 :—

Mr. L. A. W. Rind, Officiating Deputy Conservator of Forests, 1st Grade, to Deputy Conservator of Forests, 2nd Grade ;

Mr. G. F. Taylor, Officiating Deputy Conservator of Forests, 2nd to Officiating Deputy Conservator of Forests, 3rd Grade ;

Mr. A. E. Lowrie, Officiating Deputy Conservator of Forests, 3rd Grade, to Officiating Deputy Conservator of Forests 4th Grade ;

Mr. H S. K. Edie, Officiating Deputy Conservator of Forests, 4th Grade, to Officiating Assistant Conservator of Forests, 1st Grade.

No. 670.—Consequent on Mr. H. Calthrop's joining Berar from Burma from the 21st July 1893, the following statement showing the names and position of officers on the amalgamated list is published:—

No.	Names.	Position.
Deputy Conservators of Forests, 1st Grade (4.)	1. J. C. McDonnell	On deputation.
	2. F. B. Dickinson	On furlough.
	3. C. F. Elliott	Deputy Conservator of Forests, 1st Grade.
	4. J. McKee	Officiating Conservator of Forests.
Deputy Conservators of Forests, 2nd Grade (5.)	5. G. G. Minnniken	Provisional Deputy Conservator of Forests, 1st Grade.
	6. W. P. Thomas	Officiating Deputy Conservator of Forests, 1st Grade.
	7. E. Forrest	Ditto ditto.
	8. L. A. W. Rind	Deputy Conservator of Forests, 2nd Grade.
	9. F. O. Lemarchand	Ditto. ditto.
Deputy Conservators of Forests, 3rd Grade (5.)	10. G. F. Prevost	Provisional Deputy Conservator of Forests, 2nd Grade.
	11. J. Ballantine	On Deputation (on furlough.)
	12. E. Dobbs	On sick leave.
	13. W. King	Officiating Deputy Conservator of Forests, 2nd Grade.
	14. A. M. Reuther	On furlough.

No.	Names.	Position.
Deputy Conservators of Forests, 4th Grade (8.)	15. J. H. Lace	On furlough.
	16. L. G. Smith	Provisional Deputy Conservator of Forests, 3rd Grade and Officiating Deputy Conservator of Forests, 2nd Grade.
	17. F. S. Barker	On sick leave.
	18. H. Moore	On furlough
	19. G. F. Taylor	Officiating Deputy Conservator of Forests, 3rd Grade.
	20. A. L. McIntire	Ditto. ditto.
	21. H. A. Hoghton	Ditto. ditto.
	22. H. Calthrop	Ditto. ditto.
Assistant Conservators of Forests, 1st Grade (8.)	23. F. C. Hicks	Provisional Deputy Conservator of Forests, 4th Grade, Officiating Deputy Conservator of Forests, 3rd Grade.
	24. R. J. P. Pinder	Provisional Deputy Conservator of Forests, 4th Grade.
	25. A. E. Lowrie	Officiating Deputy Conservator of Forests, 4th Grade.
	26. C. Somers Smith	Ditto. ditto.
	27. G. S. Hart	Ditto. ditto.
	28. C. P. Fisher	Ditto. ditto.
	29. A. V. Monro	Ditto. ditto.
	30. A. W. Blunt	Ditto. ditto.
Assistant Conservators of Forests, 2nd Grade (7.)	31. P. H. Clutterbuck	Provisional Assistant Conservator of Forests, 1st Grade, Officiating Deputy Conservator of Forests, 4th Grade.
	32. A. M. F. Caccia	Provisional Assistant Conservator of Forests, 1st Grade.
	33. E. M. Coventry	On examination leave.
	34. H. S. K. Edie	Officiating Assistant Conservator of Forests, 1st Grade.
	35. Vacant.	
	36. Vacant.	
	37. Vacant.	

No. 671.—Consequent on the departure on privilege leave of Mr. G. F. Taylor, Officiating Deputy Conservator of Forests, 3rd Grade, the following promotions will have effect from 10th August 1893 :—

Mr. R. J. P. Pinder, Provisional Deputy Conservator of Forests, 4th Grade, to officiate as Deputy Conservator of Forests, 3rd Grade ;

Mr. H. S. K Edie, Officiating Assistant Conservator of Forests, 1st Grade, to officiate as Deputy Conservator of Forests, 4th Grade.

No. 672.—Consequent on the return from furlough of Mr H. Moore, Deputy Conservator of Forests, 4th Grade, the following promotions and reversions will have effect from 22nd August, 1893 :—

Mr. H. Moore, Deputy Conservator of Forests, 4th Grade, to officiate as Deputy Conservator of Forests, 3rd Grade ;

Mr. R. J. P. Pinder, Provisional Deputy Conservator of Forests, 4th Grade, and Officiating Deputy Conservator of Forests, 3rd Grade, to Provisional Deputy Conservator of Forests, 4th Grade ;

Mr. H. S. K. Edie, Officiating Deputy Conservator of Forests, 4th Grade, to Officiating Assistant Conservator of Forests, 1st Grade.

No. 673.—Consequent on the departure on privilege leave of Mr. F. O. Lemarchand, Deputy Conservator of Forests, 2nd Grade, the following promotions will have effect from 8th September, 1893:—

Mr. H. Moore, Officiating Deputy Conservator of Forests, 3rd Grade, to officiate as Deputy Conservator of Forests, 2nd Grade;

Mr. R. J. P. Pinder, Provisional Deputy Conservator of Forests, 4th Grade, to officiate as Deputy Conservator of Forests, 3rd Grade;

Mr. H. S K Edie, Officiating Assistant Conservator of Forests, 1st Grade, to officiate as Deputy Conservator of Forests, 4th Grade.

22nd December, 1893—No 690.—Mr. A. M. Reuther, Deputy Conservator of Forests, reported his return from the furlough granted him in Punjab Government Notification No. 164, dated 8th March, 1893, on the forenoon of the 15th December 1893, and assumed charge of the Working Plans Division with effect from that date.

7.—Central Provinces Gazette.

7th December 1893.—No. 5718.—Mr. H. A. Hoghton, Deputy Conservator of Forests, Seoni, availed himself, on the afternoon of the 11th November 1893, of the fourteen days' privilege leave granted him by Notification No. 007, dated the 26th October 1893, making over charge of his duties to the Deputy Commissioner, Seoni.

20th December No. 5975—With reference to Notification No. 5131, dated the 2nd November 1893, Mr. H. Moore, Deputy Conservator of Forests, assumed charge of the Betul Forest Division from Mr. R. C. Thompson, Extra-Assistant Conservator of Forests, on the forenoon of the 24th idem.

2nd November, No. 5981.—Mr. H. A. Hoghton, Deputy Conservator of Forests, Seoni, returned from the fourteen days' privilege leave granted by Notification. No. 5007, dated the 26th October 1893, and, assumed charge of his duties from the Deputy Commissioner, Seoni, on the forenoon of the 27th November 1893.

8.—Burma Gazette.

25th November, 1893—No. 31.—Mr. T. H. Aplin, Deputy Conservator of Forests, reported his return from the three months and fifteen days' privilege leave granted to him in the Revenue Department Notification No. 285 (Forests), dated the 2nd August 1893, and resumed charge of the Lower Chindwin Forests division, and of the Mingin subdivision of that division from Mr. C. W. A. Bruce, Officiating Deputy Conservator of Forests, on the forenoon of the 20th November 1893.

No. 32.—With reference to Revenue Department Notification No. 455 (Forests), dated 15th November 1893, Mr. A. M. Burn-Murdoch, Assistant Conservator of Forests, made over, and Mr. J. W. Thellusson, Deputy Conservator of Forests, assumed, charge of the Minbu division on the forenoon of the 18th November 1893.

No 33.—With reference to Revenue Department Notification No. 463 (Forests), dated the 23rd November 1893, Mr. C. W. Allan. Extra Assistant Conservator of Forests, attached to the Yaw division, on general duty, made over charge of his duties to Mr. D. L. K. Calderwood, Extra Assistant Conservator of Forests, Gangaw subdivision, Yaw division, on the afternoon of the 7th November 1893, and reported his arrival at the headquarters of the Upper Chindwin division on the 12th idem.

28th November, No. 284.—At the Departmental Examination held at Moulmein, Katha, Bhamo, Monywa, and Meiktila, on the 2nd November 1893, the following Forest Officers passed in the subjects specified opposite their names according to the standards prescribed for the examination for Forest Officers in Chapter IV of the Departmental Examination Rules :—

Name.		*Passed in*
Mr. C. R. Dun, Assistant Conservator		Procedure and Accounts.
Mr. C. Ingram	Extra Assistant Conservators.	Law, Revenue, and Procedure and Accounts.
Mr. D. L. K. Calderwood		Procedure and Account
Mr. W. J. Lane-Ryan		Law and Revenue.
Mr. R. F. Lowis		Revenue.
Mr. W. A. Hearsey		Procedure and Accounts.
Mr. R. M. Kavanagh		Procedure and Accounts.
Mr. C. S. Rogers	Forest Rangers.	Law and Procedure and Accounts.
Mr. H. D. Allan		

1st December, 1893.—No. II.—With reference to Revenue Department Notification No. 455, dated the 15th November 1893, Mr. W. T. T. McHarg, officiating Deputy Conservator of Forests, and Mr. C. R Dun, Assistant Conservator of Forests, respectively made over and received charge of the Bhamo division on the afternoon of the 27th November 1893.

4th December 1893.—No. 480.—On his return from leave Mr. C. W. B. Anderson, Extra Assistant Conservator of Forests, is posted to the charge of the Revenue subdivision, Mandalay Forest division.

No. 481.—Mr. R. M. Kavanagh is transferred from Mandalay to the charge of the Myadaung subdivision, Katha Forest division.

7th December 1893.—No. 484.—The undermentioned officers have been permitted by Her Majesty's Secretary of State for India to return to duty within the period of their leave :—

Mr. E. S. Carr, Deputy Conservator of Forests.

Mr. H. Carter, Assistant Conservator of Forests.

8th December 1893.—No. 486.—Mr. C. B. Smales, who has been appointed by the Secretary of State for India to be an Assistant Conservator of Forests in Burma, reported his arrival in Rangoon on the 6th December 1893, afternoon.

Mr. Smales is posted to the Lower Chindwin Forest division.

8th December, 1893.—No. 34.—With reference to Revenue Department Notifications Nos 386, 388 and 390 (Forests), dated the 4th October 1893, Mr. A. S Fleming, I. C. S., Deputy Commissioner, reported his arrival at Monywa for Forest Settlement duty on the forenoon of the 3rd December 1893.

9th December, 1893.—No. 487.—The following temporary alterations of rank are ordered in the Forest Department :—

(1) With effect from the 9th November 1893, the date on which Mr. Palmer, Deputy Conservator of Forests, availed himself of leave—

Mr. C. H. Hobart-Hampden, Deputy Conservator, 4th, officiating 3rd grade, to officiate as Deputy Conservator, 2nd grade.

Mr. F J. Branthwaite, Assistant Conservator, 1st, officiating Deputy Conservator, 4th grade, to officiate as Deputy Conservator, 3rd grade.

Mr. G R. Long, Assistant Conservator 2nd, officiating 1st grade, to officiate as Deputy Conservator, 4th grade.

(2) With effect from the 13th November 1893, the date on which Mr. Toussaint, Deputy Conservator of Forests, 4th, officiating 3rd grade, returned from leave—

Mr. F. J. Branthwaite, Assistant Conservator, 1st, officiating Deputy Conservator, 3rd grade, to officiate as Deputy Conservator, 4th grade.

Mr G R. Long, Assistant Conservator, 2nd, officiating Deputy Conservator, 4th grade, to officiate as Assistant Conservator, 1st grade.

(3) With effect from the 17th November 1893, the date on which Mr. J. Copeland, Deputy Conservator of Forests, returned from leave—

Mr. J Copeland, Deputy Conservator, 3rd grade, to officiate as Deputy Conservator, 2nd grade.

Mr. C. H Hobart-Hampden, Deputy Conservator 4th, officiating 2nd grade, to officiate as Deputy Conservator, 3rd grade.

Mr. G F. R. Blackwell, Deputy Conservator, 4th, officiating 3rd grade, to revert to his substantive appointment.

Mr. H. H. Forteath, Assistant Conservator, 2nd, officiating Deputy Conservator, 4th grade, to officiate as Assistant Conservator, 1st grade.

(4) With effect from the 18th November 1893, the date on which Mr. Thellusson, Deputy Conservator of Forests, returned from leave—

Mr. F. W. Thellusson, Deputy Conservator, 2nd, to officiate as Deputy Conservator, 1st grade.

Mr. H Slade, Deputy Conservator, 2nd, officiating 1st grade, to revert to his substantive appointment

Mr. H B. Anthony, Deputy Conservator, 4th, officiating 2nd grade, to officiate as Deputy Conservator, 3rd grade.

Mr. C. L Toussaint, Deputy Conservator, 4th, officiating 3rd grade, to revert to his substantive appointment.

Mr. H N. Thompson, Assistant Conservator, 2nd, officiating Deputy Conservator, 4th grade, to officiate as Assistant Conservator, 1st grade.

Mr. J. Messer, Assistant Conservator, 2nd. officiating Deputy Conservator, 4th grade, to officiate as Assistant Conservator, 1st grade.

(5) With effect from the 20th November, the date on which Mr. Aplin, Deputy Conservator of Forests, 2nd, officiating 1st grade, returned from leave—

Mr F. W. Thellusson, Deputy Conservator, 2nd officiating 1st grade, to revert to his substantive appointment.

Mr. J Copeland, Deputy Conservator, 3rd, officiating 2nd grade, to revert to his substantive appointment.

Mr. H Jackson, Deputy Conservator, 4th, officiating 3rd grade, to revert to his substantive appointment.

Mr C. W. A. Bruce, Assistant Conservator, 1st, officiating, Deputy Conservator, 4th grade, to revert to his substantive appointment

11*th December* 1893.—No. 481,—The following postings and transfers are ordered in the Forest Department :—

Mr F. J. Branthwaite, officiating Deputy Conservator of Forests, is transferred as a temporary measure from the Working Plans division to the Tharrawaddy division.

Mr. H Carter, Assistant Conservator of Forests, on his return from leave, is posted to the charge of the Working Plans division.

On being relieved by Mr. Hauxwell of the charge of the Salween-Attaran division, Mr. J. Messer, Assistant Conservator of Forests, is posted as a temporary measure to the Toungoo division.

12*th December*, 1893.—No. 35.—With reference to Revenue Department Notification No. 463 (Forests), dated the 23rd November 1893, Mr. H H Forteath, officiating Deputy Conservator of Forests, reported his arrival at the headquarters of the Upper Chindwin division on the forenoon of the 28th November, 1893.

No. 36—Mr. C. W. Allan, Extra Assistant Conservator of Forests, Upper Chindwin division, assumed charge of the Kindat Revenue subdivision of that division on the forenoon of the 2nd December, 1893.

No. 37.—With reference to Revenue Department Notification No. 455 (Forests), dated the 15th November 1893, Mr. W. T. T. McHarg, officiating Deputy Conservator of Forests, reported his arrival at the headquarters of the Lower Chindwin division on the forenoon of the 6th December, 1893.

9.—ASSAM GAZETTE.

30*th November*, 1893.—No. 11,303G.—In consequence of the death of Mr. J. C Kelly, Extra Assistant Conservator of Forests, First Grade, Babu Tara Kisor Gupta, Extra Assistant Conservator of Forests, Fourth Grade, is promoted to the Third Grade of Extra Assistant Conservators with effect from the 29th May 1893.

7*th December*, 1893.—No 11,548G.—Mr. F. E. B. Lloyd, who has been appointed by Her Majesty's Secretary of State to the Forest Department in Assam, having reported his arrival in India, is attached o the Goalpara Forest Division.

7th December, 1893.—No 11,597G.—In continuation of Notification No. 11,821G., dated the 1st December 1893, the Chief Commissioner directs, on the report of the Central Examination Committee, the publication of the results of the Half-yearly Examination held on the 14th, 15th, and 16th November, 1893, of the Forest Officer named below :

Name.	Subjects taken up by the Candidate.		Subjects in which passed.		Compulsory Subjects in which still required to pass.	
	Higher Standard.	Lower Standard.	Higher Standard.	Lower Standard.	Higher Standard.	Lower Standard.
Mr. A. M. Long, Assistant Conservator of Forests.	Assamese, Procedure & Accounts.		Procedure and Accounts.		Assamese.	

10.—HYDERABAD RESIDENCY GAZETTE.

24th November, 1893.—No. 361.—Mr. B. Bhukan, Extra Assistant Conservator of Forests, is transferred temporarily from the Buldana to the Ellichpur Forest Division, and Mr. Bisessar Singh, Forest Ranger, is placed, as a temporary measure, in charge of the Buldana Division.

28th November, 1893.—No. 362.—The Resident is pleased to declare that Mr. E. M. Coventry, an Assistant Conservator of Forests in the Hyderabad Assigned Districts, has passed with credit the examination in Procedure and Accounts prescribed for Assistant Conservators in sections 72 and 78 of the Forest Department Code.